January 1986 No. 46

95p

Mark McGinn. PAID

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ARCADE HALL OF FAME

COMMODORE 64/128

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Weeks in Charts – 16

'Superb Arcade Game'
Zzap! 64

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Weeks in Charts – 9

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Your Computer

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Crash

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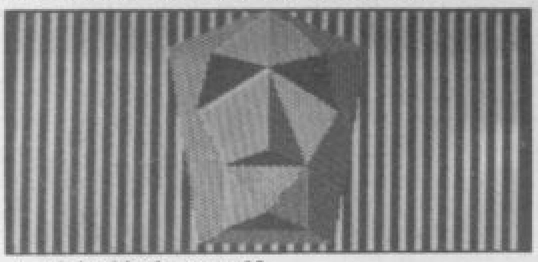
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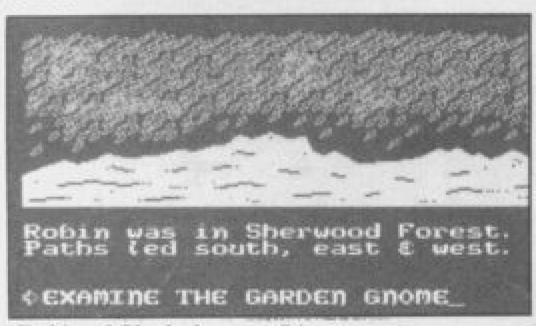
* Based on compiled data (64/Spectrum) from Ram/C/Micro Dealer Charts

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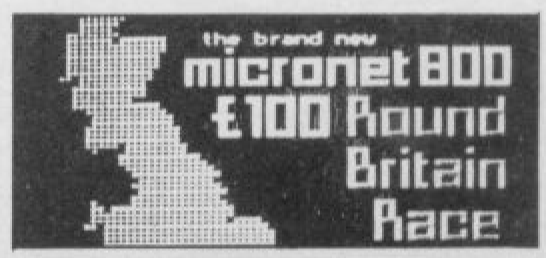
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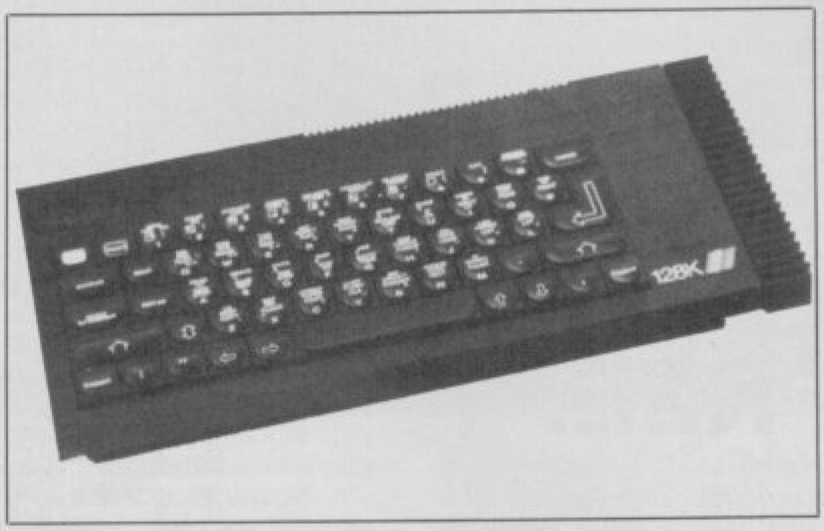
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128K out in January



THE SPECTRUM 128K will be on sale in the UK by the end of January. That's the promise made by Sinclair Research to software houses currently writing or converting games for the 128K machine, which was launched last September in Spain.

Sinclair Research refuses to comment, but the software house we spoke to confirms that Sinclair has approached a number of companies and offered incentives to ensure a supply of software for the new machine when it is launched.

"We couldn't have done it without the backing of Sinclair," says our source. "They're making it attractive for us to do it."

He refuses to say whether the incentives took the form of subsidies or guarantees, but says Sinclair Research expects immediate sales in the tens of thousands. Presumably the deal is based around compensation if sales do not reach the projections.

This is the first time that Sinclair Research has ever co-operated with software houses prior to the launch of a machine in order to ensure a good supply of software. Many companies have complained bitterly in the past of lack of support from Sinclair, particularly in the QL area, which still suffers from a lack of products.

Further confirmation of the January launch is a rumoured advertising push in the New Year, with a special brochure. But talk is also flying fast and free about a professional QL, with 512K memory and floppies instead of microdrives.

Such a machine has been on the cards for some months now, and Sinclair Research is known to have investigated a number of possibilities for developing the potential of QL technology. The waferdisk system, however, once promised for the end of 1985, appears to have been an indefinite casualty of the financial problems earlier in the year.

Those troubles seem likely to result in a disappointing report for the first six-monthly period of the '85-'86 financial year. Figures of up to £30m in losses are not impossible, although the deal which sold 160,000 machines to Dixons has alleviated some problems. Those machines were, however, sold at rock-bottom prices, and there is little doubt that Sinclair Research has some way to go before it regains the full confidence of the business world.

The unicorn faces final extinction

THERE WILL be no more Mikro-Plus games from Mikro-Gen, following the relatively poor sales of **Shadow of the Unicorn.** The game uses the novel Mikro-Plus device to expand the memory of the Spectrum.

Managing director Mike Meek says one factor in the decision was the refusal of WH Smith to accept the lower-than-normal profit margins offered by Mikro-Gen. According to Meek, the cost of the hardware made normal Smith profit margins prohibitive.

"Usually our games need to sell about 20,000 to break even," he says. "Unicorn would have had to sell 40,000, but it's only done about 11,000."

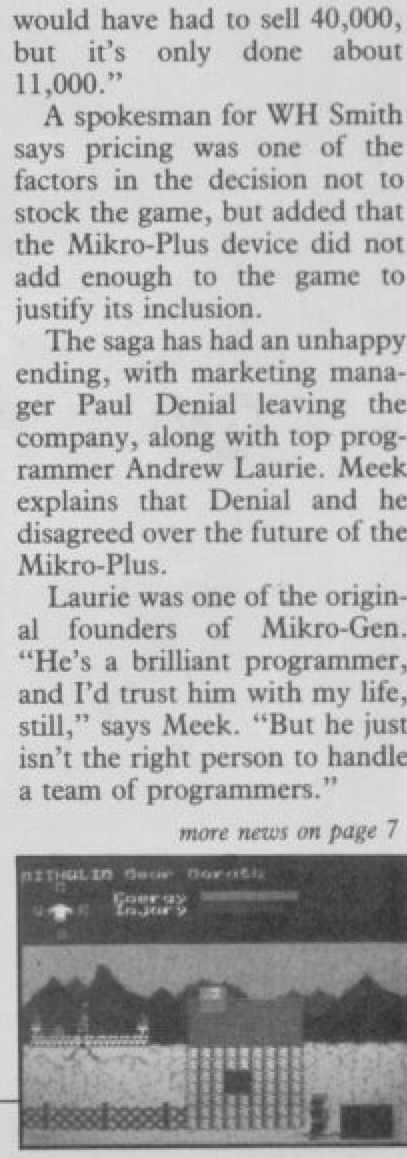
'The Mikro-Plus does not add enough to the game to justify its inclusion'

A spokesman for WH Smith says pricing was one of the factors in the decision not to stock the game, but added that the Mikro-Plus device did not add enough to the game to justify its inclusion.

The saga has had an unhappy ending, with marketing manager Paul Denial leaving the company, along with top programmer Andrew Laurie. Meek explains that Denial and he disagreed over the future of the Mikro-Plus.

Laurie was one of the original founders of Mikro-Gen. "He's a brilliant programmer, and I'd trust him with my life, still," says Meek. "But he just isn't the right person to handle a team of programmers."

more news on page 7



The lens: 20/20 vision or mirage?

THE revolutionary security device, Lenslok, has already come in for criticism from the public.

The first game to use Lenslok is the chart-topping **Elite,** from Firebird, and within days of release the company received phone calls from furious games players who were unable to use it. It appears that Firebird's instructions were less than perfect — containing 'ambiguities', according to the company — and new instructions are now available.



Phil Pratt, of Firebird, says: "Because there was so much attention surrounding **Elite,** expectant games players rushed home, whacked in the cassette, and were disappointed to find that they had to get through a brand new protection system." He does not deny, however, that the faulty instructions were a hindrance.

Digital Integration, who has also released a lenslocked game, **Tomahawk,** does not anticipate similar problems. Managing director David Marshall says: "We've included a self-teaching tutor mode and changed the instructions to emphasize important features.

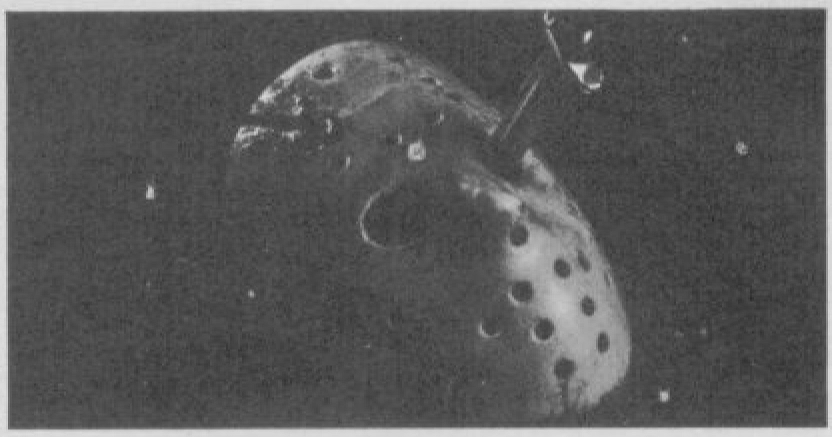
"We've tried it on an awful lot of people, including my mother-in-law, who's never loaded a game in her life, and none of them experienced difficulties."

ASAP Developments, the company which manufactures Lenslok, is so pleased with Digital's implementation of the system that it has adopted both instructions and tutor mode as standard.

Digital Integration intends to lenslok all future product, including the long-awaited **TT Racer.** Pratt of Firebird, on the other hand, say the company is unsure as to whether it will employ the system again. The soon-to-be-released Hot Range is not lenslocked.

Elite owners who require an updated Lenslok instruction sheet can obtain it from Firebird Software, Wellington House, Upper St Martin's Lane, London WC2H 9DL.

Friday 13: too violent



THAT gruesome horror movie, *Friday the 13th*, is to make its debut on the computer screen — thankfully with a little less spillage of blood and guts. However, there has been some controversy concerning the packaging and advertising of the game.

The picture appearing on cassette inlays and in advertisements depicts an ice hockey mask in a pool of blood with a knife piercing the eye-hole. Menzies has refused to carry the game with its present artwork, although Boots and WH Smith have agreed to take on the product.

"The idea was originally presented by the film company as something rather eye-catching," comments Domark's Dominic Wheatley, explaining that a small change has been made in the artwork to get round the Menzies problem. "We simply dropped the picture — there is a big black space with the wordage on top and underneath it."

Some magazines have also experienced problems and have had a few telephone calls, mostly from parents, complaining about the advertisements. "I suppose it's quite a good thing to have controversy, though, apparently there have been more comments about **Rambo** than **Friday the 13th**," says Wheatley. "If people don't want it, we don't want to press the point. We are working out some other way of advertising."

'We are trying to amuse people — Friday the 13th will not incite anyone to run around and hurt someone'

The film cannot be seen by those under 18, yet the game can be bought by all ages. That does not seem to bother Wheatley. "*Friday the 13th* is not a video nasty — it's an approved film. Many X-rated films are accompanied by books which are often more vivid in their descriptions and yet under 18s can buy those. We are trying to amuse people — **Friday the 13th** will not incite anyone to run around and hurt someone."

Sinclair names QL printer

SINCLAIR RESEARCH has finally plucked up its courage and chosen a printer for the QL on which the Sinclair logo is to be placed.

The machine is a nine-pin Seikosha dot matrix printer, which will plug directly into the QL without the need for an interface. It will cost £249.

"We chose the Seikosha machine because we believed it offered the best combination of attributes," says Alison Maguire, marketing manager for Sinclair Research.

Those attributes include speeds of 100cps — or 25cps at near-letter quality — and single sheet or tractor feed options. Nevertheless, at that price the combination of QL and printer still costs more than the new Amstrad word-processor package. Whether or not the introduction of a branded printer will encourage retailers to sell complete packages at a discount remains to be seen.

Terminal illness for Medic?

MEDIC Data Systems which produces peripherals for the QL, is in trouble. The offices of Medic have been closed and Chris Skogland, managing director, is temporarily in Ireland.

The problems seem to have started with the non-replacement of faulty goods; more recently, there have been complaints from consumers over the non-receipt of goods after payment had been made.

An injunction was successfully sought by Medic Data Systems' PR agent to freeze all assets until debts were paid. At the time of writing, that injunction is still in force, although it is expected to be lifted in the near future. Meanwhile the PR agents are continuing to work for Medic.

Best selling mouse marries Spectrum

THE AMX Mouse, a finalist in the Peripheral of the Year Award 1985, is now available for the Spectrum.

The Mouse, originally designed for the BBC micro, comes from Advanced Memory Systems, and costs £69.95, including Centronics interface, manual and software. It is a device connected to the computer and which, when moved over a flat surface such as a tabletop, will move the on-screen cursor in a corresponding fashion. The Mouse thus becomes a faster alternative to keyboard control.

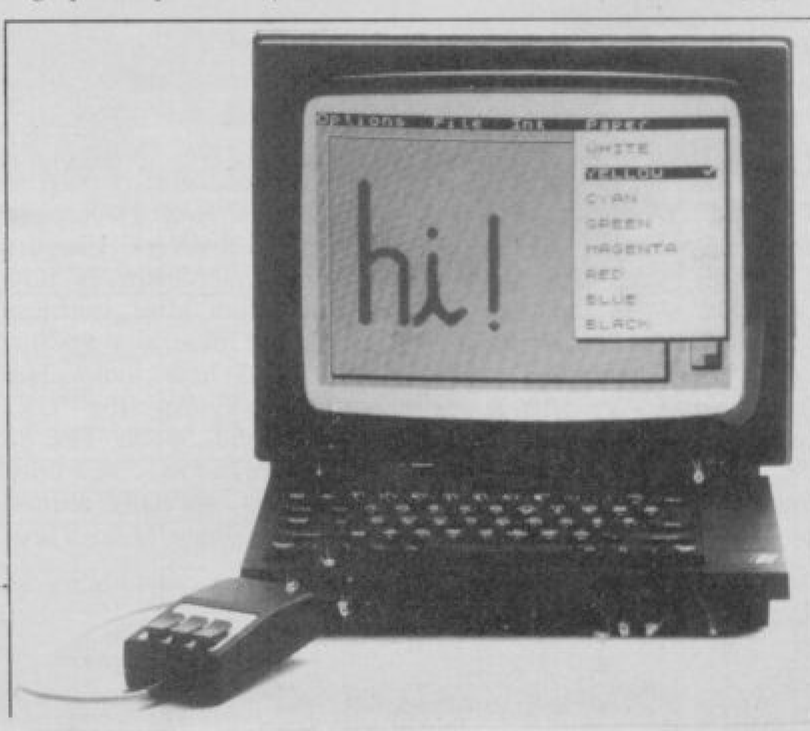
The software accompanying the Mouse includes **AMX Art,** for producing professional standard drawings; **AMX Colour Palette,** to add colours to the pictures created by **AMX Art**; and **AMX Control** to create a mouse environment, adding 28 commands to Basic and including an icon designer.

Some commercial software is already fully compatible with the Mouse, such as **Art Studio** and **Artist 2**.

Nick Pearson, of AMS, is enthusiastic: "We see this as the computer marriage of the year. Here we have the most successful home computer of all time — the Spectrum — linking up with potentially the best-selling peripheral of all time, the AMX Mouse."

The Mouse is, according to Pearson, available from all good computer shops now and from chain stores shortly. Further information can be obtained from AMS, Green Lane, Appleton, Warrington, WA4 5NG. Tel: 0925 62682.

more news on page 8



Games in the pipeline

THE EVIL and devastating force of Darkon hangs like a cloud over Megron. Only you and your faithful companion, Komputa, can save the planet. **Souls of Darkon,** from Taskset, is in the shops for £7.95.

Part simulation, part arcade action, Activision's **Rescue on Fractalus** has you flying a spaceship and landing on a alien planet in a hazardous rescue bid. Due for release in February at £7.99.

A second compilation from Virgin is already in the shops costing £8.95. **Now Games 2,** the sequel to the successful **Now Games,** features Elite's **Airwulf,** Gargoyle's **Tir Na Nog,** Palace's **Cauldron, Chuckie Egg 2** from A&F Software and Artic's **World Cup.**

Design your own track, then leap into a Formula 1 for a death-defying race. Leisure Genius is releasing **Scalextric** for the Spectrum in early February for £9.95.



Firebird has just launched the HOT range to complement its already bewildering collection of Gold, Silver, and Super-Silver ranges. The HOT range will be priced at £7.95 and the first releases include **Rasputin, Gerry the Germ** (goes body poppin'), and **Costa Capers** — to be released from mid-December onwards.

The Desert Rats are up and fighting again. Join forces with General Montgomery against Rommel in the North Africa Campaign of 1941-1942. Refight the Battle of Alamein in **Desert Rats** from CCS.

A game based on the Beatles has been announced by Number 9 Software. **Beatle Quest** is a split screen adventure and costs £9.95.

Learn to fly a Spitfire before going into combat in a WWII battle. To be released in December by Mirrorsoft, **Spitfire 40** costs £9.95. Other releases include **Hold the Front Page** and **Dr Blitzen,** out in January for £9.95.

Play Avenger, the ninja warrior, and battle against the forces of evil in **The Way of the Tiger** from Gremlin Graphics, based on the role-playing adventure book of the same name. It will be available in February at £9.95.

Cyberun and **Gunfright** are two new games from Ultimate which will be released in December. No details are known, but the games will be £9.95 each.

Deathwake is Quicksilva's latest offering and sets you in the last stages of a terrible war. As admiral-in-chief, you must buy time to restore the homeland's morale and regain territory lost to the Alliance. To defeat them, you must destroy their secret research laboratory set deep within a mountain. Priced at £7.95.

Ariolasoft is releasing three games in time for Christmas. **Think!** is a new way of playing four-in-a-row and contains hint and tutorial modes. **Skyfox** is a combat simulation program featuring a 3D scrolling flight simulator, and air-to-air and air-to-ground combat modes. Both games cost £7.95. **Realm of Impossibility** is an arcade adventure played in a dungeon and costs £8.95.

Rescue a fair maiden and play the hot-headed Spaniard **Zorro** in US Gold's latest release. There are all sorts of puzzles to figure out before you can free her from the clutches of the evil Sergeant Garcia. Available now for £7.95.

Due for release soon is the **Battle of Britain** from PSS. Deploy your squadron against the might of the Luftwaffe and drive them back into the channel. **Battle of Britain** will retail at £9.95.

Micronet aids Mexico

THERE'S been Live Aid, and **Soft Aid,** and now there's Mexican Aid — an appeal for the Mexican Earthquake disaster, run through Micronet 800.

Since October, when the appeal was launched, Micronet subscribers have been pledging their donations and have raised £180.

Donations for the Ethiopian Appeal are still coming in. Gremlin Graphics has presented a cheque for £3,000 from the sales of **Tinderbox** — a children's adventure, written specially for the Appeal and released at the same time as the **Soft Aid** compilation. Ian Stewart, from Gremlin Graphics is reputed to be disappointed by the sum, but as he comments, "If we had not made the effort, it would have been £3,000 less for the Appeal."

Monies raised in response to **Soft Aid** are in the region of £350,000. A new compilation is being put together, for release in the next few months, featuring games from US Gold, Ocean and Activisiion, although the actual titles are not yet known.

Gyron winner takes cash



A PORSCHE, or the equivalent in cash, was the prize for the winner of Firebird's **Gyron** competition. And 16-year-old Juan Manuel Perez Vazquez from Malaga, Spain is now £12,800 richer after storming through the maze.

The final heat took place simultaneously in the UK, Denmark and Spain. The 33 competitors had to solve a third **Gyron** map, specially written by Ricardo Pinto from Torus — the team which wrote **Gyron.** Ricardo reckoned it was possible to solve the map in 15 minutes.

Juan, who played his heat in Malaga, supervised by Pete Fountain from Firebird, finished in the astounding time of 18 minutes. The next competitor to complete the maze took one hour 37 minutes.

The map, called Arena, will be released shortly as part of the Silver Range for £1.99.

Deus gets relaunched

DEUS EX MACHINA, the classic Automata game of 1984, is to be re-released by Electric Dreams. The game, designed by Mel Croucher, features a full synchronised soundtrack with Ian Dury, Frankie Howerd and Jon Pertwee, among others.

Raved over by the critics, and voted Game of the Year by the industry, it nevertheless failed to get into the shops, mainly because of the deadly emnity between distributors and Automata over the latter's refusal to accept the usual discounts and credit terms.

"It's too original and innovative to allow it to languish in obscurity," says Electric Dreams overlord Rod Cousens. "Marketed properly and at a different price it should get some exposure."

The Spectrum version should be available by the second week of December, and will cost £9.95. Meanwhile Automata will continue to sell Deus mail-order. "I wish there were more people who didn't think mail order companies were all sharks," says Automata's Christian Penfold. "There are more sharks among and wholesalers," he adds.



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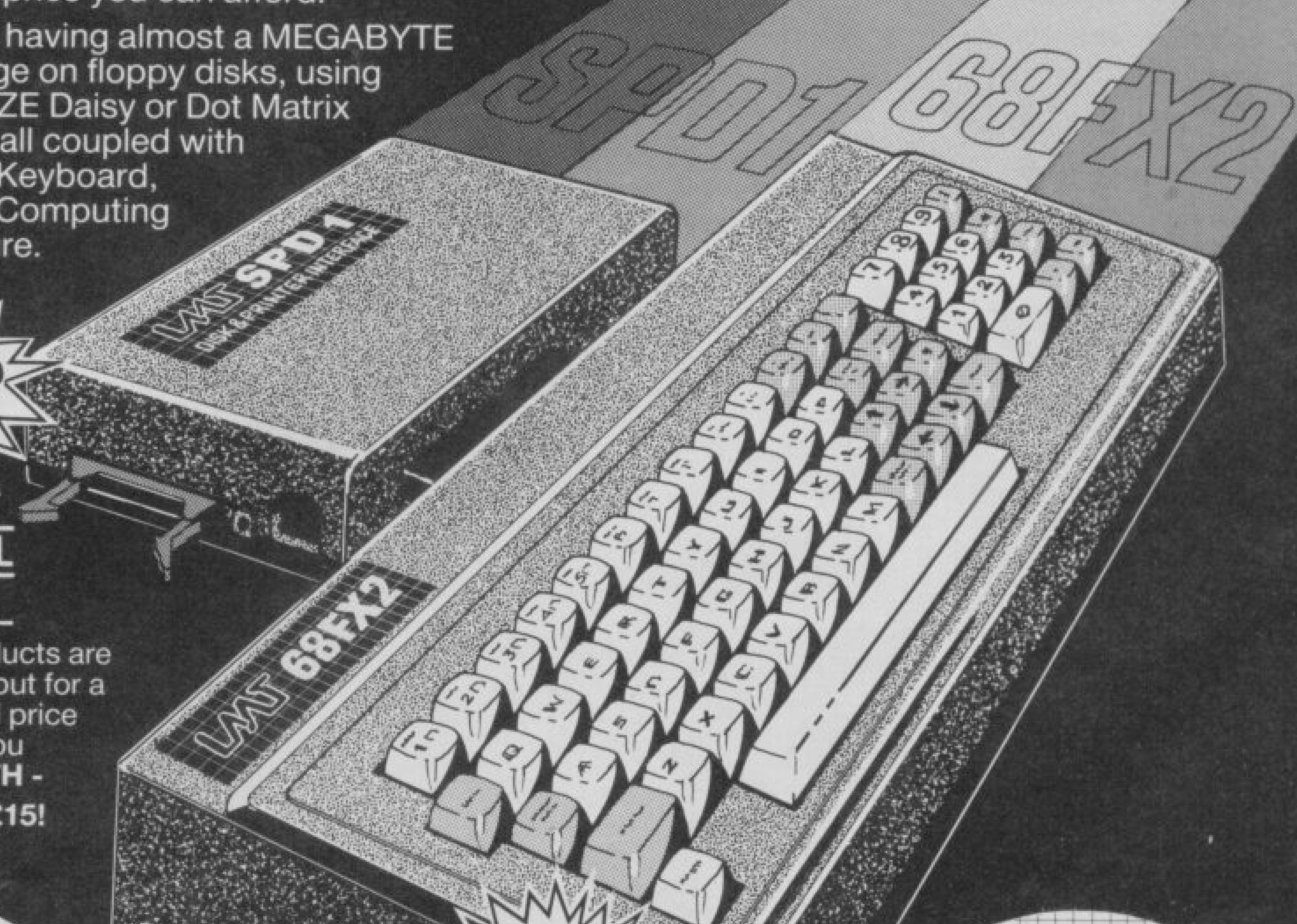
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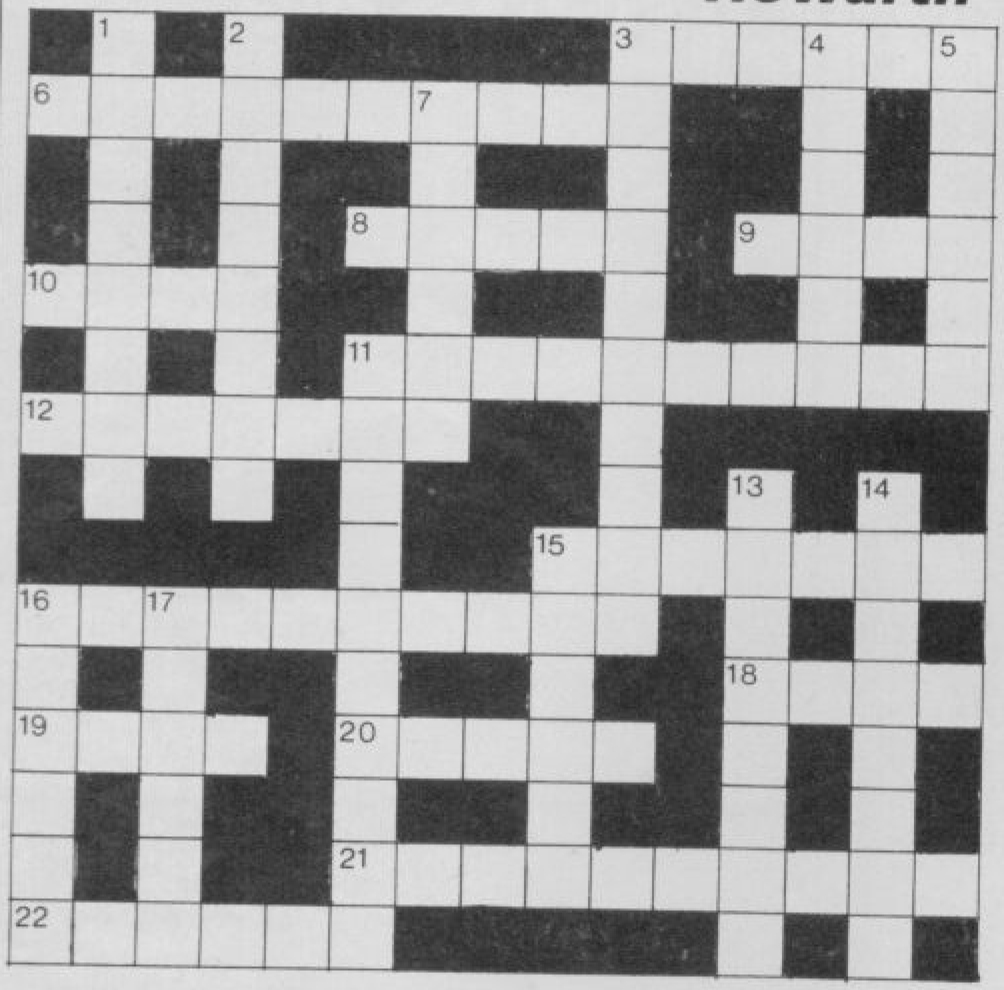
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ZXWORD by Henry Howarth



Across

3. Visit Alicante to discover this type face (6)
6. Unit I'm also designing for a game style (10)
8. Comparatively higher (5)
9. Largish computer on board small car? (4)
10. Alexander's surname may have a familiar ring to it (4)
11. Report disc corruption giving information on data record (10)
12. Bob Geldof's program of famine relief? (4,3)
15. Asteroids in remote southern setting (7)
16. Supported by material of an explanatory nature (10)
18. In theory, they could be disjunct, null or universal (4)
19. Signal fluctuation gives the deaf a problem (4)
20. CHR$69+CHR$78 attempt access (5)
21. Dedicated number cruncher (10)
22. Angular academic achievement (6)

Down

1. Alternative logical operation causes a riot here (6-2)
2. Multi-User Dungeon accommodation found at low tide (8)
3. Performed calculus operation on this type of circuit (10)
4. Spectrum command to send output to the printer (6)
5. Facsimile machine (6)
7. Bad bet badly positioned on the screen (6)
11. Not the same as the sum? — the opposite, in fact (10)
13. Someone and everyone — like IBM's micro (9)
14. Hand shaking? — pot color! (8)
15. REM, C, IT standardised internationally? (6)
16. Definitive start to finish rear-guard action (6)
17. Programming could be a dog in C! (6)

solution on page 136

Electric sandwich

DESPITE the sceptics I believe in the C5,and have just started a unique mobile sandwich board service in the Greater Manchester area using my unique customized C5 Sputnik 1.

If this venture continues to be successful I hope to open the first specialist C5 shop, personalizing C5s to provide a unique low cost fun buggy. I also hope to form a national C5 owners' club.

Nev Fadrious,
6 Derby Street, Mossley,
Ashton-under-Lyme,
Tameside

● *This man is clearly dangerous. Readers, be warned.*

Gordo gets five of the best



IN THE October issue I saw myself referred to as 'Five Best-Shaw.' Gordo, obviously, misread my name. The 5 he read was my S. I do not think EMAP should employ illiterate employees — especially as Adventure Helpline columnists.

On a lighter note — bring back the Gilbert factor; have sensible covers — no Arfur Daley, Roland Rat et al; have more pokes and hints etc, and easier competitions.

Otherwise you are a good mag.

Samuel Best-Shaw,
Maidstone, Kent

● *On the whole I think I prefer Five . . . Anyway, we consider ourselves lucky that Gordo can read at all, let alone scrawl those hieroglyphics on the revolting goat skins which clog up our letter box each month.*



Lying, cheating, stealing . . .

R OLGIATI — letters, November — deliberately ignored what I said in my letter. I wrote: "If it is wrong for children to pirate games can the often extortionate prices charged by some software houses be morally justified?" Well, can they?

A trade ad quoted computer tapes at 15 pence each, less in bulk. So something costing 15 pence is put in a fancy box and sold at maybe up to £15 plus. Nice mark up, eh? There's nothing wrong with profit, but profiteering is a different matter?

If we teach children that it's wrong to steal, shouldn't we also teach them that it's wrong to hoodwink people into paying vastly inflated prices? Let me ask a question. If there's no difference between someone pirating a game and stealing a copy, isn't it wrong for software houses to pirate board games, the programs of other houses, and to steal ideas?

I fear that unscrupulous firms and individuals in software are teaching children, by example, that lying, cheating, stealing and profiteering are OK, even honourable. Letters such as R Olgiati's which miss the main issues, and put a smokescreen around important, moral issues, don't help.

Martin Scholes,
Telford,
Shropshire

● *Nobody's going to be impressed with arguments which compare the price of a blank C15 cassette with the price of finished, packaged software — sometimes the result of a year's work. Talk about smokescreens — yours must be the thickest around. Ed.*

Wrapped over the knuckles

ANY YEAR since **Tasword II**'s vintage has been a bad year for Spectrum word processors: a fact which makes Mike Wright's cosmetic review of OCP's **Word Manager** — November — funny rather than seriously misleading.

The first delight to typists new to WP on any machine is the function which most processors call word-wrap; it eliminates manual return of the carriage and ends the debate which follows the sound of the bell — "Will the rest of this word, or a new word fit the line? Can I split it with a hyphen?" Word-wrap does it automatically.

Mike Wright says that I will be surprised to find that this function "does not make the slightest difference when you are entering text."

I will be surprised, Mike, I really will! I'd also like to know when you use word-wrap when you are not entering text!

With friends such as this reviewer, OCP could do with a blind bank manager. Fancy baring that semi-literate adipose menu in public! Two key presses to get you a capital 'S', "to show script on screen". (Where else?). This definition of function contains one flagrant misuse of language and is about 15 bytes overweight. The next item on the menu is called by a capital 'B' which should be defined as 'Delete text' but which actually uses 94 bytes of inaccuracy and confusion.

I spare you the rest of the menu which uses exotica like 'jd*c?' carries 43 bytes too many and plants a few more knives in the back of the Queen's English. Word processor? Shall I ever forget DEJUSTIFY? Just give me the chance!

Gordon West,
Milton Abbot,
Devon

● *Well, yes. I quite agree. Couldn't have put it better myself.*

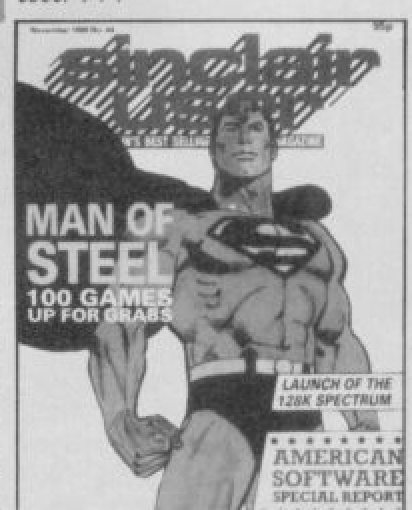
Comical covers

WHY DOES your front cover, every month, look like the front cover of a child's comic? My wife collected the magazine last month and handed it back to the newsagent, thinking she had been handed a comic by mistake.

If you change your cover style you will be more likely to keep your bread and butter regular readers who are interested in subjects other than games.

K J Rhodes,
Winchester, Hants

● *Whaddya mean, comic? Look at this month's cover (Er, it's Asterix. Ed). Well, look at next month's cover . . .*



more letters on page 14

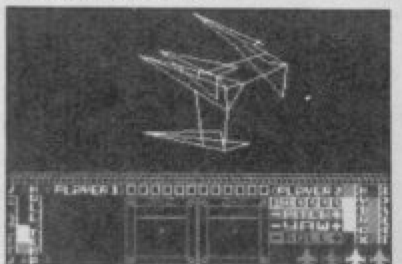
Gyron vs Starion

I WAS disgusted and repulsed to read N A Foster's letter concerning **Gyron** and the amazing programmers from Torus. **Starion** does show great technical brilliance in graphics, but the plot is dull and tacky compared with **Gyron**, which has a superb and intense atmosphere.

Concerning Torus, if using alternate screens to avoid colour clash and speeding up the Spectrum drawing routine isn't masterful, I don't know what is.

Christopher Smith,
Alveston, Bristol

● *Advantage Torus.*



I WAS just about to finish **Starion**, heading for the last time zone in the last grid of the third block when the program went haywire. Instead of picking up letters for the last zone, it zapped back to a time zone in the first or second block.

It is now four months since I wrote to Melbourne House and still not even a note to say they were looking into it. Seeing as how you have to pay £12 to £14 for games over here you would at least expect to be able to finish them.

As for comments on **Starion** and **Gyron** in recent issues, I'd say one was as equally boring as the other, and we'd have bought neither if we'd had ten minutes to try them out first.

Patricia Deane,
Co Kerry, Eire

● *Deuce.*

Through a lens darkly

A FRIEND recently spent £15 on the so-called mega-game **Elite**. The other night, when three grown men decided to have a go at the game, they were reduced to tears.

The problem is the adventure you have to go through with that damn Lenslok thing to get the game going. It took us about one hour.

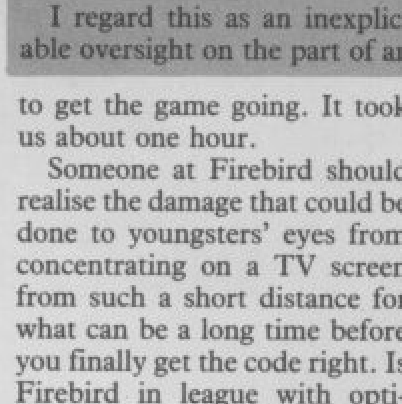
Someone at Firebird should realise the damage that could be done to youngsters' eyes from concentrating on a TV screen from such a short distance for what can be a long time before you finally get the code right. Is Firebird in league with opticians all over the land?

The game is a pleasure to play when you eventually get it going.

My friend was so annoyed that he phoned up BT to complain, but unfortunately the operator couldn't help him.

Gerry Hunt,
Wembley, Middlesex

● *Firebird admits that the Lenslok instructions are less than helpful, and has improved them. See news story.*



Four stars for Micro Office

IN YOUR review of our **Micro Office** business pack for the 48K Spectrum, in December's *Sinclair User*, your reviewer made a monumental error. He stated that our stock control program can only handle ten lines. That is a ridiculous claim since this program has a maximum capacity of 500 lines of stock!

We supply the program with a sample file of ten records, simply to demonstrate its use. The user can then create his own file of up to 500 records, to suit his stock.

If Mr Wright had read just the very first paragraph of the program manual — or used the 'New File' option in the main menu, then this fact would have been obvious.

I regard this as an inexplicable oversight on the part of an experienced reviewer. It ruined what was an otherwise favourable review and gave the misleading impression that our package lacks the power for real applications.

We believe that **Micro Office**, which at £14.95 includes sales/purchase ledgers plus mailing list and stock control, offers genuine value to the small trader.

Steve Denson,
S D Micro-Systems,
Hitchen, Herts

● *Both the program and manual make it very clear that the maximum number of stock lines is 500. That obviously affects my comments on stock control and networking.* **Micro Office** *is much more powerful than I gave it credit for, and a revised star rating of four stars has been awarded. My sincerest apologies to Steve Denson and SD Micro Systems. Mike Wright.*

Ultimate champion



HAVING bought **Fairlight** because of your exclusive preview in September's *Sinclair User*, I waited to see the tremendous graphics unfold before my eyes.

Far from being streets ahead of Ultimate's **Alien 8**, I found it poorer, and a long way short of **Nightshade**.

I can't see why everybody wants to put down Ultimate's games, for in my opinion the only game which equals them for graphics is **Highway Encounter** but, sadly, that is too easy to complete.

Steve Bowden,
Hayes, Middlesex

Blinkered biker

I READ with disgust A M Whitlock's opinion — Letters, November — of your review of **Action Biker**.

Obviously he is so blinkered in his thinking that he does not realise that if software companies make a profit from inferior games of this kind, they will not produce anything better. This standard of software was only acceptable when the Spectrum was released.

A J Lucas,
Blackwood, Gwent

● *So true, so true.*

Lonely ROMs

I'M a 17-year-old young boy from Lebanon, and I own a 48K Spectrum, and over 80 programs. I wish to have penpals from all over the world, to exchange tips, programs and ideas. All letters will be answered.

Rami Zaatari,
c/o Ahmad
AUB PO Box 11-0236/2050
Beirut, Lebanon

HI! I am a 17-year-old boy from Portugal, and I own a 48K Spectrum. I would like to exchange software and ideas with Spectrum users from the UK.

Pedro La,
Av Dr Luciano Justo Ramos
No 7, 2485 Mira de Aire,
Portugal

I WOULD like to swap software with anybody who has a Spectrum. Send your list for mine.

Sarajc'ic Ivan
Bulevar Avnoja 84/27
11070 Novi Beograd,
Yugoslavia

I'M 17 and I would like to have some pen-friends from any part of the world. Boys or girls of any age are welcome. I own a 48K Spectrum.

Albert Foo,
770 Happy Garden,
Old Kuchai Road,
58200 Kuala Lumpur,
Malaysia

I OWN a 48K Spectrum and I'd like to contact other Spectrum owners to exchange programs. My favourite games are Abu Simbel Profanation, Dynamite Dan, Frankie Goes to Hollywood and Jet Set Willy II.

Ludovic Barrie're
37 rue Jean Moulin,
76530 Gd Couronne les Essants,
France

Frankie Goes to Hollywood

HERE IS some information about the killer in **Frankie Goes to Hollywood**.

The killer likes to gamble, to drink red wine and dislikes music. He is aged between 30 to 40, is a film-buff and a local wit. He is a keen gardener and has no car. He is an avid reader and is an early riser.

Gökhan Ölger,
Istanbul,
Turkey

Southern Belle

I HAVE driven the **Southern Belle** to Brighton with three tons of coal to spare. In **Booty**, I have scored 48 with 77 treasures remaining, and in **Match Day**, I have scored 5-0 on the international level.

Simon Howell,
Rubery,
Birmingham



Nightshade

AFTER one hour and 15 mins I managed to complete Ultimate's **Nightshade** with 68 per cent.

When you kill the final creature, your percentage is shown and they then fall into a large hole. Kill the creatures in the following order: Ghost — Bible; Mad monk — Cross; Skeleton — Hammer; Mr Grimreaper — Egg-timer.

Adrian Powter,
Duxford,
Cambridge

Match Point

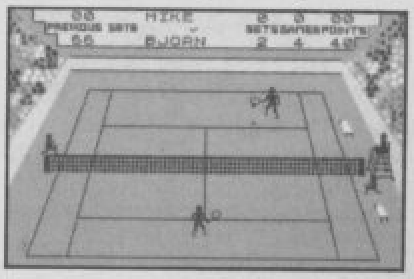
I AM sending you a Poke which may be useful to other readers.

It doubles the speed of **Match Point**, and to get it working just type MERGE"" and enter. Edit the number 23313 in line 10 to read 23320 and remove the last three numbers in line 200. Then type in the following:

210 DATA 175, 50, 142, 209, 50, 153, 209, 195, 0, 99

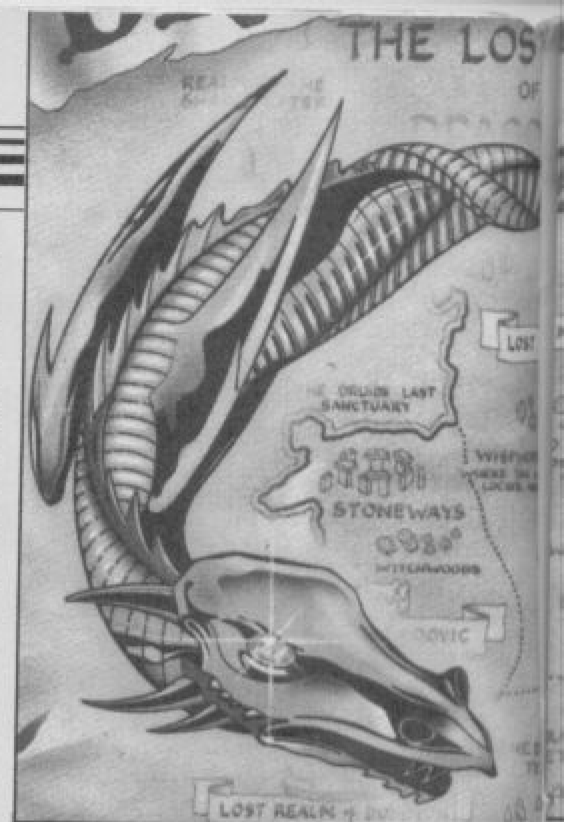
and enter. Then run and load the rest of the game.

In the quarter and semi-finals you will probably find it



irritating to play — the players flicker and move faster than the ball. But in the finals, the players hardly flicker and the speed is proportionaly correct. I can almost guarantee that you will get swept off the court the first time you play, even if you win easily on normal speed.

Leif Kvernhusvik, Norway



Dragontorc

TO GAIN infinite energy in **Dragontorc**, LOAD as usual, but when "Program : DRAGONTORC" has been printed, stop the tape and press break. Then type in the following:

```
10 for F = 23296 to 23337 :
Read A : Poke F,A : Next F :
Randomize Usr 23296
20 DATA 49,122,96,221,33,
16,189,17,73,0,62,255,55,205,
86,5,33,25,91,34,62,189,195,
48,189,33,34,91,34,207,189,
195,16,189,62,200,50,197,227,
195,124,96.
```

Save that with Save "Dragon" Line 10. Then run it and



A View to a Kill

I HAVE found a way to rescue May Day in the Silicon Valley Mine section of **A View to a Kill.**

Collect the grappling hook then get two dynamite sticks and the lighter and move onto the lift.

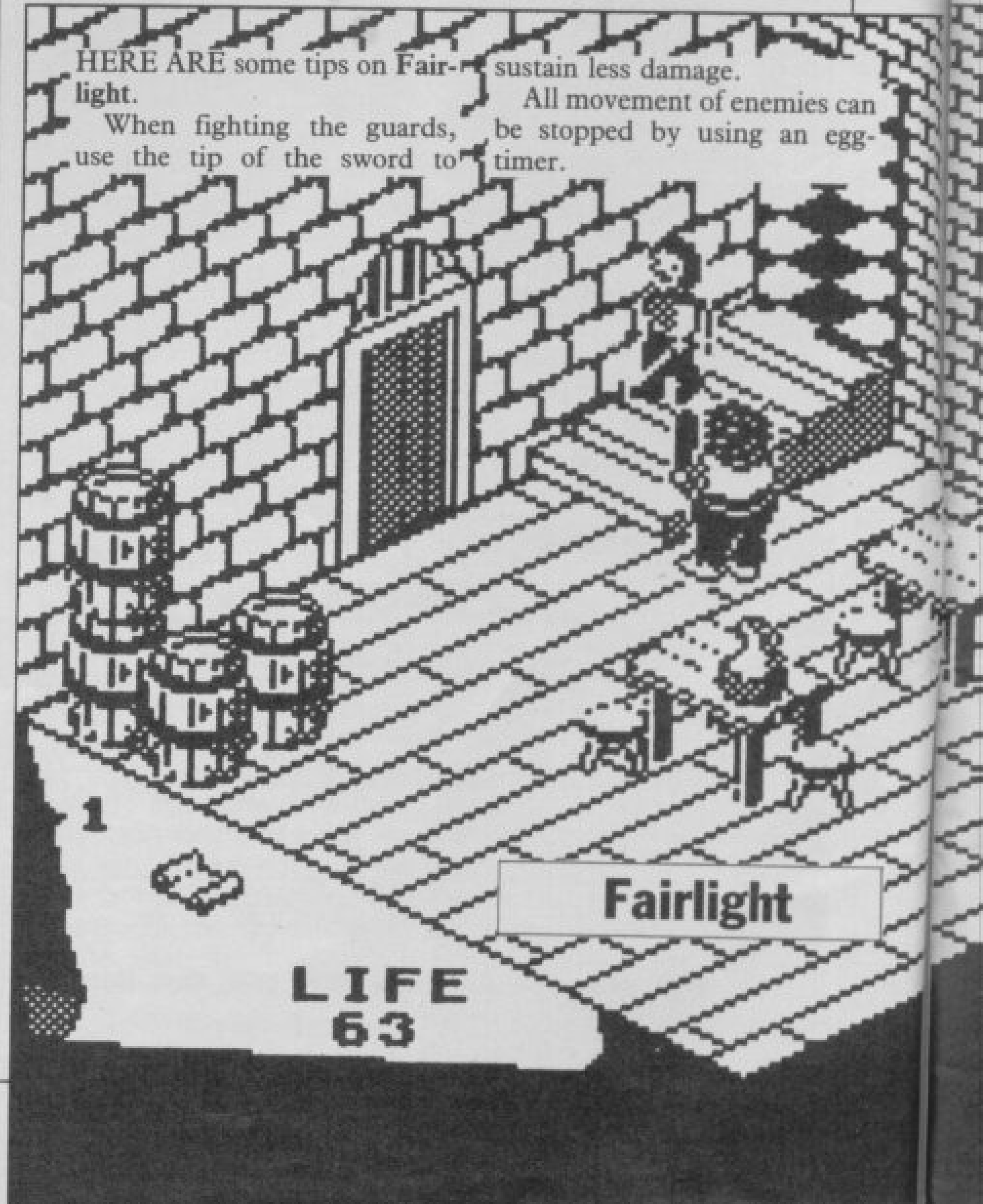
Wait until the lift reaches the bottom, then get off to the right, onto the rocks. Walk and jump until you get to a man-made rock. Use your lighter and dynamite to blow that up and then walk to the holes. Jump the first holes and fall down the second. You are now at the bottom of the man-made mine; fall down the shaft until you reach the bottom. Walk and jump until you find yourself at another man-made rock. Blow up the rock by dropping a stick of dynamite and using the lighter. May Day will then run to you.

Paul Whitby,
Hull

IN DOMARK'S **A View to a Kill**, I have not been able to snare the devious May Day , even when positioned directly beneath her — all this in the Paris chase.

As a result, I have not obtained a code to get through to the City Hall part of the trilogy. I am in need of some assistance.

A Patel,
Durban,
South Africa

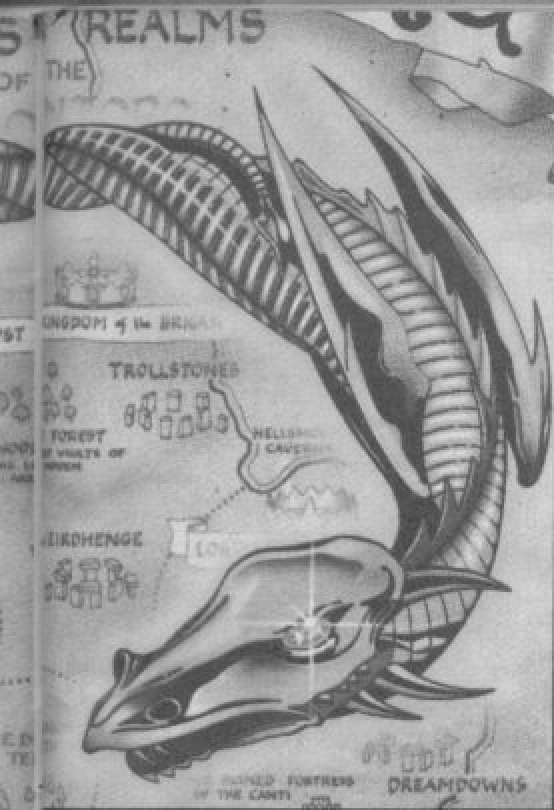


Fairlight

HERE ARE some tips on **Fairlight**.

When fighting the guards, use the tip of the sword to sustain less damage.

All movement of enemies can be stopped by using an egg-timer.



restart the tape. A good tip is to use a Bane Spell — it never runs out.

For infinite lives in **Starion,** type clear 65535: LOAD ""CODE:RANDOMIZE USR 23303. Then run your tape from the start and it will ignore the Basic loader. When Ø : OK appears type in POKE 46526,0 if your game is in a thick box; or POKE 46600,0 if your game is in a transparent box.

Russell Speight,
Westerhope,
Newcastle-on-Tyne

● *OK. So who's thick and who's transparent?*

In the chequered room — which contains whirlwinds — lies a secret door situated in the top right-hand four squares. That section of the room can be reached by stacking objects under the ledge and pushing it out.

In the throne room, there is a panel on the throne nearest to you which slides off to reveal a cross.

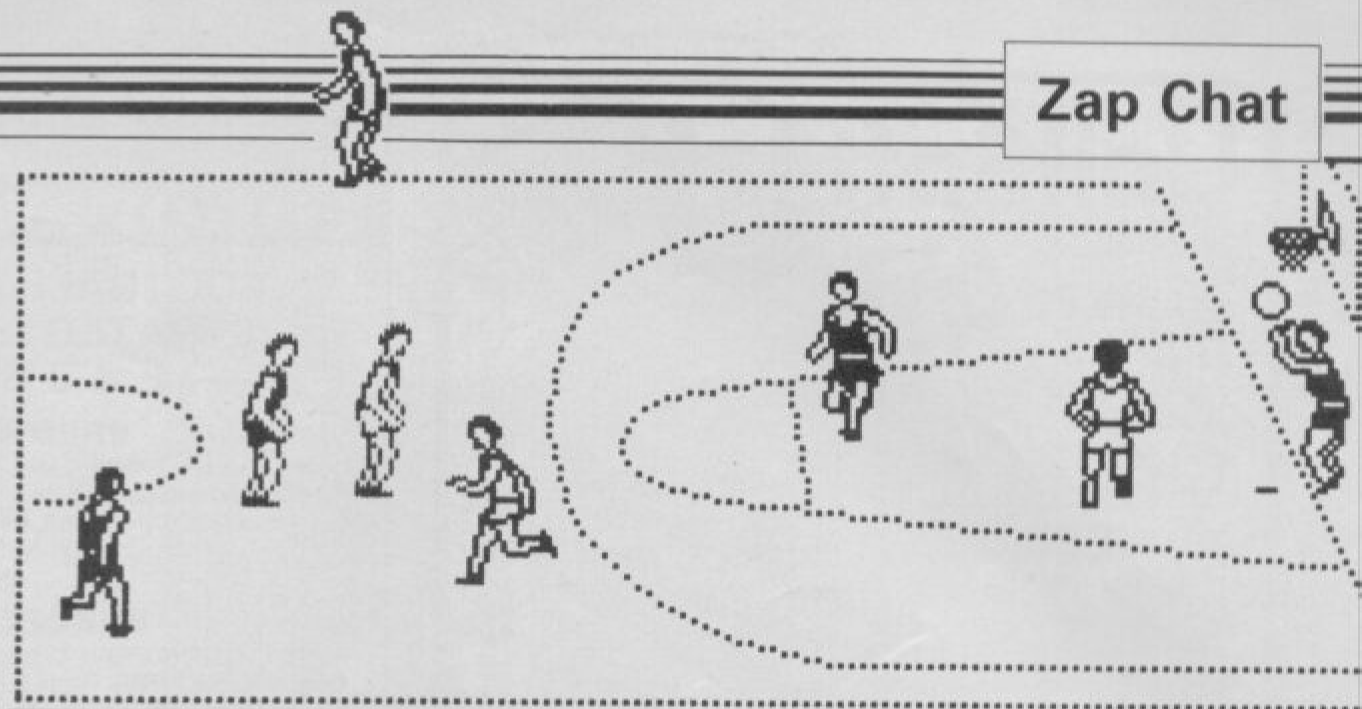
Under the bridge lies a moat. A bridge can be built using three barrels. A cross on a pedestial lies over the second bridge. Use the scroll to return to the courtyard.

The cross kills a spectre in the tower opposite the killer plants. The second spectre in the tower is killed by a potion — does anyone know how to kill the third spectre?

On top of an arch in the courtyard is a crown which can be reached by climbing on a barrel.

Consuming wine, chicken and bread will restore ten life points; potions will restore all 99 life points.

Daniel Sayer,
Retford, Nottingham



Basketball

I HAVE just beaten the computer on **World Series Basketball** with 60-0, level one.

In the first half, it is very difficult to tackle the opposition, so it is best to get yourself tackled. That is done by standing in front of the opposing player with the ball, and after four fouls you get two free throws.

In the second half it is very easy to tackle by walking in front of the player with the ball. When the opposition has a throw-off, stand behind the player who is most likely to receive the ball — he will usually be standing still.

Stephen Owen,
Norwich,
Norfolk



Hacker

I CLAIM to be the first person to finish **Hacker** by Activision. I finished on November 4, 1985, saving the world. I delivered the evidence to Washington and got my name in the *Washington Post*.

Christopher Bone,
Cockermouth,
Cumbria

Formula 1

CAN ANYONE beat my score on CRL's **Formula One**? On level four, I came first and second in the driver's championship with scores of 93 and 78, and a driver's total of 177 points.

Here are some hints on **World Series Baseball**:

Keep the right key pressed down when batting as you will hit it further.

When fielding, let the computer player reach first base, then throw the ball to first base and the player will run to the second. Throw the ball back to the bowler and the player will freeze. Make the bowler run to intercept him with the ball and he will be out.

Mark Schutz,
Enderby,
Leicester

Way of the Exploding Fist

NOW, we're just a couple of unlikely lads, with more than a passing interest in the martial arts. We don't know a Peek from a Poke but after reading your review of **Way of the Exploding Fist** we decided to splash out. After more than 100 fights on 10th Dan, and a score of half a million, we decided to turn the whole thing off and get down to the real thing.

Keith Topham,
Stuart Harrison
Tao Noy Sing Karate Club,
St Helen's, Merseyside

Elite

I HAVE discovered an amazing bug in Firebird's **Elite**. Once through Lenslok, press 'Y' in answer to "Load new commander Y/N". Then take option 2, Save your position to tape and exit the menu with option 3.

You will be berthed around the planet Tigean with the status of Elite; 653425253.5 credits to your name; and enough hardware to decimate half the universe this side of Clapham.

Paul Hughes,
London SE1

Starquake

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Alex Pearce,
Leigh,
Kent

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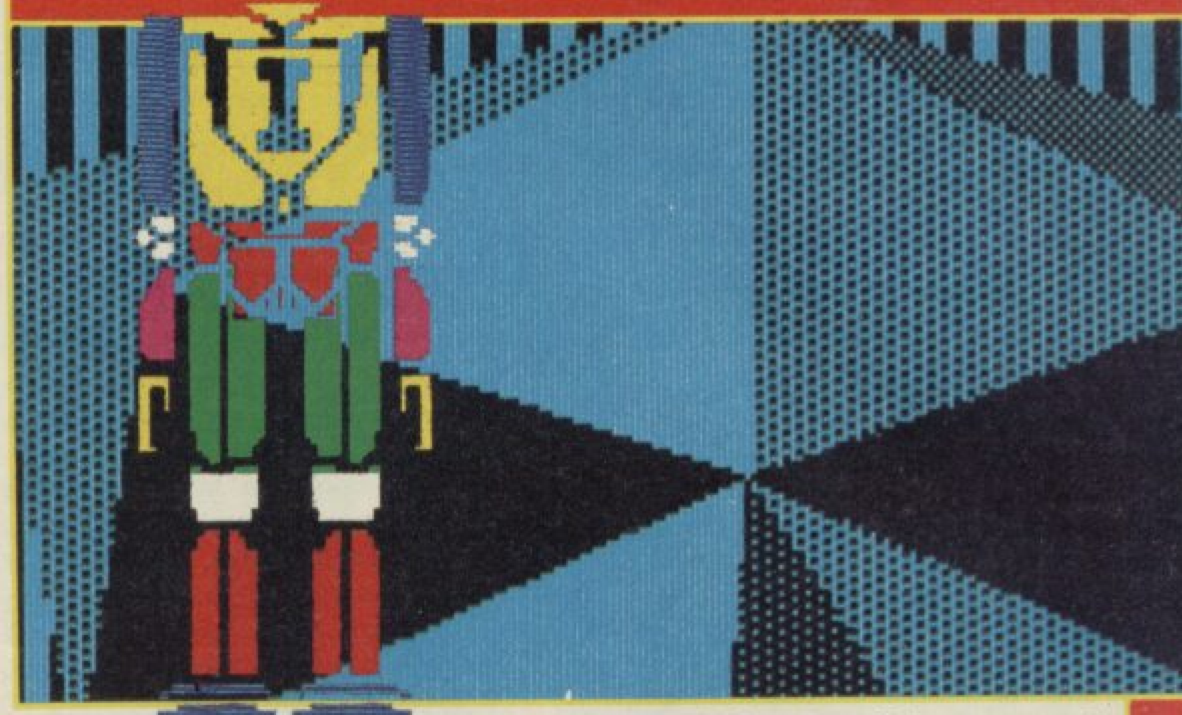
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★★★★ Value for money
★★★ Nothing special
★★ Over-priced
★ A rip-off



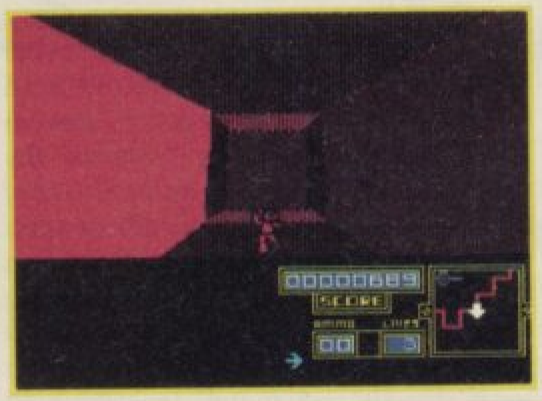
I, Of the Mask

YOU'VE got to admit it — Sandy White has class. He's the programmer who wrote the magnificent classic **Ant Attack** for Quicksilva, and he's back again with his old boss Rod Cousens. **I Of the Mask** is the result, and Sandy is obviously pursuing his own style as independently as ever.

The game is a maze quest in which you have to collect the parts of a robot — 17 in all — in order to win the Space Trials of Newgama III. The parts have to be collected in the right order, and are contained within 32 universes located throughout the maze. Each universe has three crystals, one containing the part, one taking you to another universe, and the third dumping you in another part of the maze. Your score is increased each time you collect a part, and decreases with time. If you get the wrong part, you lose a life.

Your tiny spaceman is dwarfed by the towering walls and, when you turn, instead of the usual switch between two frames, the whole scene turns with you, lurching wildly until it reaches what passes for balance again. It's the stuff of nightmares.

The robot parts are extremely difficult to recognise at first, and you must use a combination of sensible guessing and simple trial and error to work out which you should go for first. That makes the first few games fairly arbitrary, but as you recognise the first few collectable parts, the rest becomes easier through elimination. In general,



the crystals form an efficient means of travelling swiftly through the maze, but do not put you where you expect. It can be very hard indeed to reach the appropriate universe — and if you have run out of ammunition you will not be able to shoot down the part.

Although there's obviously much strategy and skill involved in the game, it does become a little repetitive. Luckily, the power of the graphics save it from becoming totally boring, but we should have preferred to see rather more variety all the same.

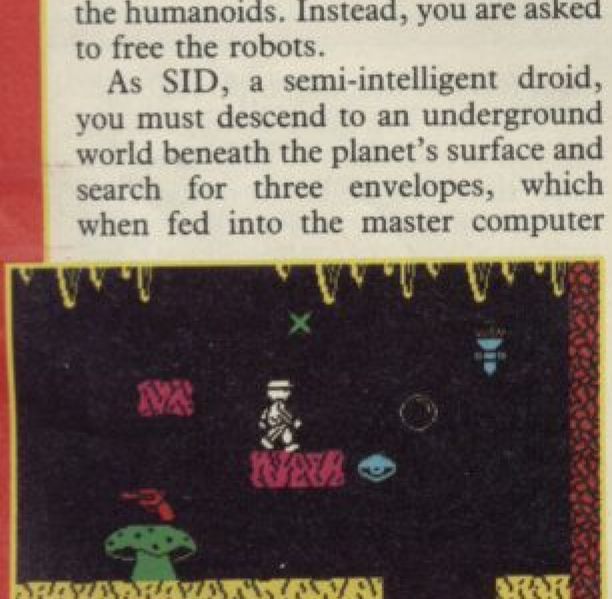
Chris Bourne

Publisher Electric Dreams
Price £7.95 **Memory** 48K
Joystick Sinclair, Kempston cursor
★★★★

Robot Messiah

ROBOT MESSIAH makes a welcome change from the usual theme of free the humanoids. Instead, you are asked to free the robots.

As SID, a semi-intelligent droid, you must descend to an underground world beneath the planet's surface and search for three envelopes, which when fed into the master computer



will free the droids.

The game is divided into three stages. The first, the caves, is simple but colourful and well illustrated. It consists of levels connected by rocky ledges and strewn with gnomes, bears, objects and flying nasties.

As only three objects can be carried, trips back to the start where the master computer lies will be necessary. Don't worry though, the caves are easy to memorise.

Two objects must be collected to gain entrance to the second stage — the buggy. This is hardly relevant to the game and consists of you sitting in a car trundling along at minus two miles per hour. It is neither strenuous nor exciting. Push the joystick down to pick up energy pills as you roll over them and push the joystick up to raise a shield for protection from nasties.

The test centre is another maze, full of differing levels, and as in the caves there is much scope for your jumping skills. SID is a bit slow off the mark and takes ages to leap, but his jumps are amusing and realistic. When you have found all the envelopes, pick up the PSU units and find the transporter pad. That will take you to the caves where you can begin your long climb back to the master computer.

Robot Messiah demands a degree of skill to complete the game with three lives. Arcade adventure experts will probably have the game whipped within a fairly short period, but if you are new to this type of maze mania it is challenging material.

Clare Edgeley

Publisher Alphabatim **Price** £7.95
Memory 48K **Joystick** Kempston Sinclair, cursor
★★★

more software on page 20

PREVIEW



Commando

IF YOU are into khaki and fancy being a soldier, join the commandos.



Capcom, Japanese coin-op manufacturer released the arcade game **Commando** in the UK early this year. It has not taken Elite long to sniff it out, buy the rights and produce a computer counterpart.

Your brief — to storm into enemy territory and kill, kill, kill until you reach the opposing army's fortress. With machine gun swinging at hip level the game starts. However, the macho image is rather lost as you seem to be wearing a pink pyjama suit — perhaps that's what commandos wear while out on patrol.

The game is surprisingly difficult, one man against an army — and they have a whole arsenal at their disposal. You do have a supply of bombs to lob into bunkers and over sand bags, but while you're lobbing you are likely to be splattered by a bazooka, or mown down by machine gun fire.

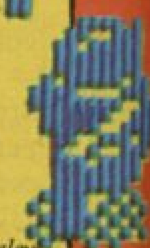
As you continue your headlong charge the hazards increase, bunkers, trenches, cannons, narrow bridges to negotiate, and lorries and motor cyclists to avoid. Stores of ammunition can be picked up en route by running over them, although they are tricky to collect as they tend to be situated near gun emplacements and so on.

We saw a preproduction copy of **Commando** and Elite assures us that minor bugs such as colour clash will be corrected before the game is sent out for distribution.

The graphics are basic and it is not always clear what they are meant to depict. For instance, giant green and white mushroom-like objects seem to have sprouted at random — some type of building, I suppose.



The action is chaotic and the animation smooth. **Commando** is very similar to the original, but in terms of the Spectrum's graphics, colour and sound, it can't compete. *Clare Edgeley*



Saboteur

DEATH is only a footstep away as your black-clad saboteur, expertly trained in the martial arts, flits through dingy warehouse corridors in search of the secret information disc.



The disc contains the names of rebel leaders who must be located and eliminated by government forces. Your mission is simply to enter the warehouse, avoid the rabid-looking dogs, kill the guards who get in your way and find the helicopter in which the information is stored.

When you arrive on the scene you have only one weapon — a Shuriken — a star-shaped metal device which you can throw. When that has been used you will have to discover more weapons. Those include hand grenades, knives, bricks and stones.

On occasion you can use your fists and feet, although close combat is the most risky to your survival rating.

In the best traditions of mercenary achievement, your pay depends on how many dogs and guards you kill. The largest incentive is £10,000 if you manage to steal the disc and escape.

Time is also an important factor. It's no use having the muscle if you haven't got the sense to find the information disc.

The game is very realistic, the graphics are outstandingly smooth and there is no colour clash or flicker to speak of. There are nine levels of play, ranging from extremely easy to extremely difficult. *John Gilbert*

Publisher Durrell
Price £8.95 **Memory** 48K
Joystick Kempston, Protek
★★★★★

Soul of a Robot

HOW CAN YOU possibly make your way round a maze when everything you touch sends you tumbling?

The aim is to find the master computer and blow yourself up to save the robot race — a slightly different variation on an age old story line. The computer is hidden in the third section of the maze. To exit a section you must first find the transporter key and then the transporter room.

You can leap into the air to jump on or over obstacles, and laser blast the aliens, many of which confront you in the form of a skull. There is a rather macabre flavour to **Soul of a Robot** — the sides of the screens are embellished with the skeletons of long forgotten monsters, and skulls are the main form of decoration throughout.



There are five jump settings allowing you to leap short or long distances. Each time you touch an obstacle, or one of the aliens, you are sent flying and each move needs careful timing and a lot of patience.

Soul of a Robot is the sequel to **Nonterraqueous** which is easier and more enjoyable to play. *Clare Edgeley*

Publisher Mastertronic
Price £1.99 **Memory** 48K
Joystick Sinclair, Kempston, Protek
★★★

International Karate

YES, it's another karate game. **International Karate** follows the same format as Melbourne House's **Way of the Exploding Fist,** and was set to be released at about the same time. Here, finally, is the much talked-of rival to the Fist — and it's pretty good.

The 16 actions are similar to those in Fist and controlled in the same way — eight with, and eight without, the fire button pressed down. They include somersaults, sweeps, a variety of kicks and punches, the spectacular flying kick, and the full Monte roundhouse routine.

Scoring is according to the standard system as well — 30-second bouts, with two full points determining the winner. Bonus points are scored depending on the speed with which you demolish your opponent.

The animation is excellent, and the fighters have a rather more sporting look about them, as opposed to the

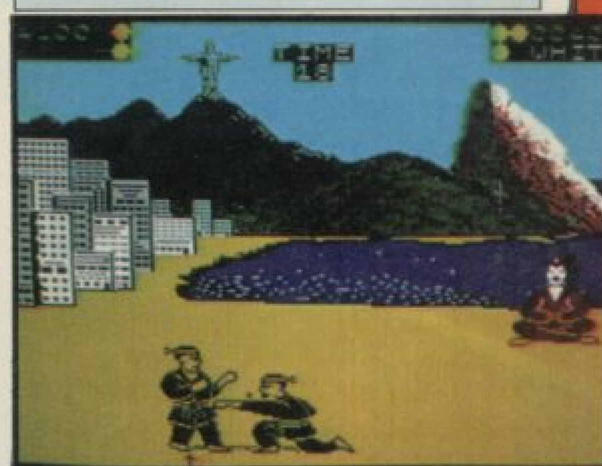


Melbourne House emphasis on oriental mystery. **International Karate** is a tournament-based game in which you travel the globe for each stage in the championships. Melbourne House may have the slight edge in animation design, but **International Karate** has the best backdrops — including a different set on each side of the tape.

We found **International Karate** about as tough to beat as Fist, but then again, we've had you lot writing in to complain that Fist was too easy. There is really so little to choose between the two programs that it all boils down to style and presentation. Melbourne House wins the laurels for elegance and simplicity of design, but you can't escape the fact that **International Karate** costs over £2 less.

On that basis, System 3 offers better value for money, and had it been released first we would have given it a Classic award. You may spot differences between the two which we regard as unimportant, but which you feel tip the balance. So try to see both games before you make up your mind — but one of the two ought to be on everybody's shopping list this Christmas. *Chris Bourne*

Publisher System 3 Software
Price £6.50 **Memory** 48K
Joystick Kempston, Sinclair
★★★★★



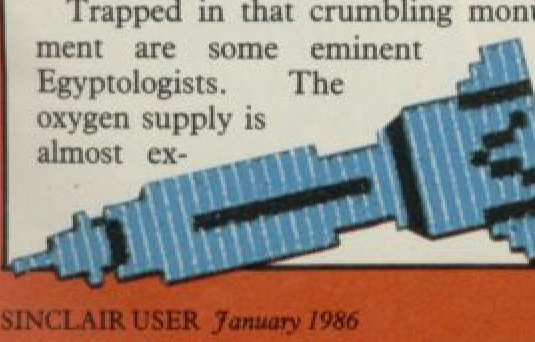


Thunderbirds

THUNDERBIRDS are go! With a hiss the swimming pool slides back to reveal Thunderbird One. Meanwhile, Thunderbird Two makes a sudden exit from the face of a cliff.

"Virgil! I'm going in," screams Scott as he roars between the pyramids. "F.A.B. I'm right behind," yells Virgil and Thunderbirds One and Two disappear from sight as they enter the intricate maze of an ancient pharaoh's tomb.

Trapped in that crumbling monument are some eminent Egyptologists. The oxygen supply is almost exhausted. One rescue team has failed already. Scott and Virgil will have to use all their initiative to get them out alive. The pharaohs were a devious bunch and to prevent the tomb being ransacked, they erected a device whereby great stone blocks would fall in the paths of any who entered.

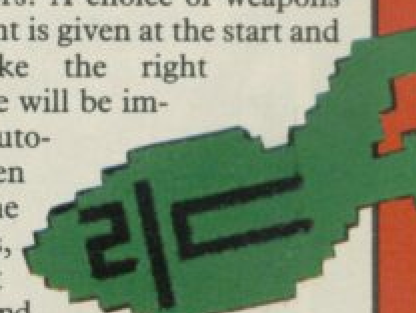


Thunderbird One can move the blue blocks, and Thunderbird Two, the green. Both can shift the red blocks. However, the passages are narrow, there are many that the bulkier Thunderbird Two cannot negotiate, and shifting blocks around without due forethought could leave Scott and Virgil in peril.

Artefacts and treasures can be picked up en route which will help your score, and fuel dumps can be utilised for a longer playing time. The famous *Thunderbirds* theme tune accompanies the rescue mission, but it can be turned off for some blessed silence.

Thunderbirds is brilliant, a gigantic puzzle which will tax your ingenuity and powers of logic. Blocks may have to be moved two or even three times until they are out of the way.

The game is nicely balanced with some arcade sequences — not that you have to shoot at anything. But you will have to negotiate a spider's web, patrolling guardians and mummies amongst others. A choice of weapons and equipment is given at the start and if you make the right choices, those will be implemented automatically when you reach the arcade screens, knocking out obstructions and affording you an easy path to the exit.

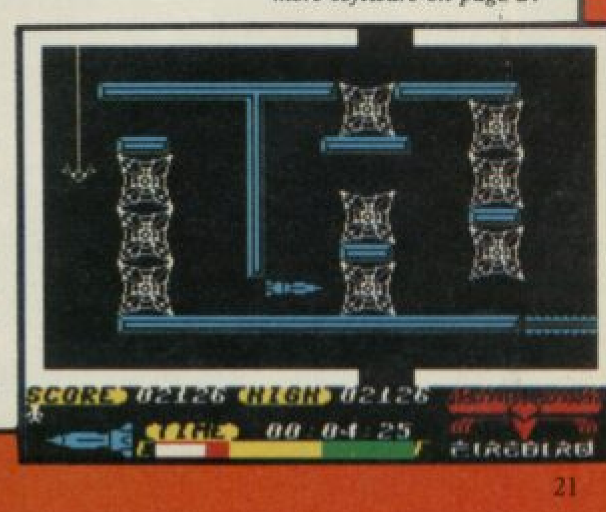


I haven't enjoyed myself so much for a long time. The game is not particularly fast; the graphics are quite basic but more than adequate. But figuring out those puzzles has me hooked.

In the words of Scott, Virgil, Gordon and Co — F.A.B. *Clare Edgeley*

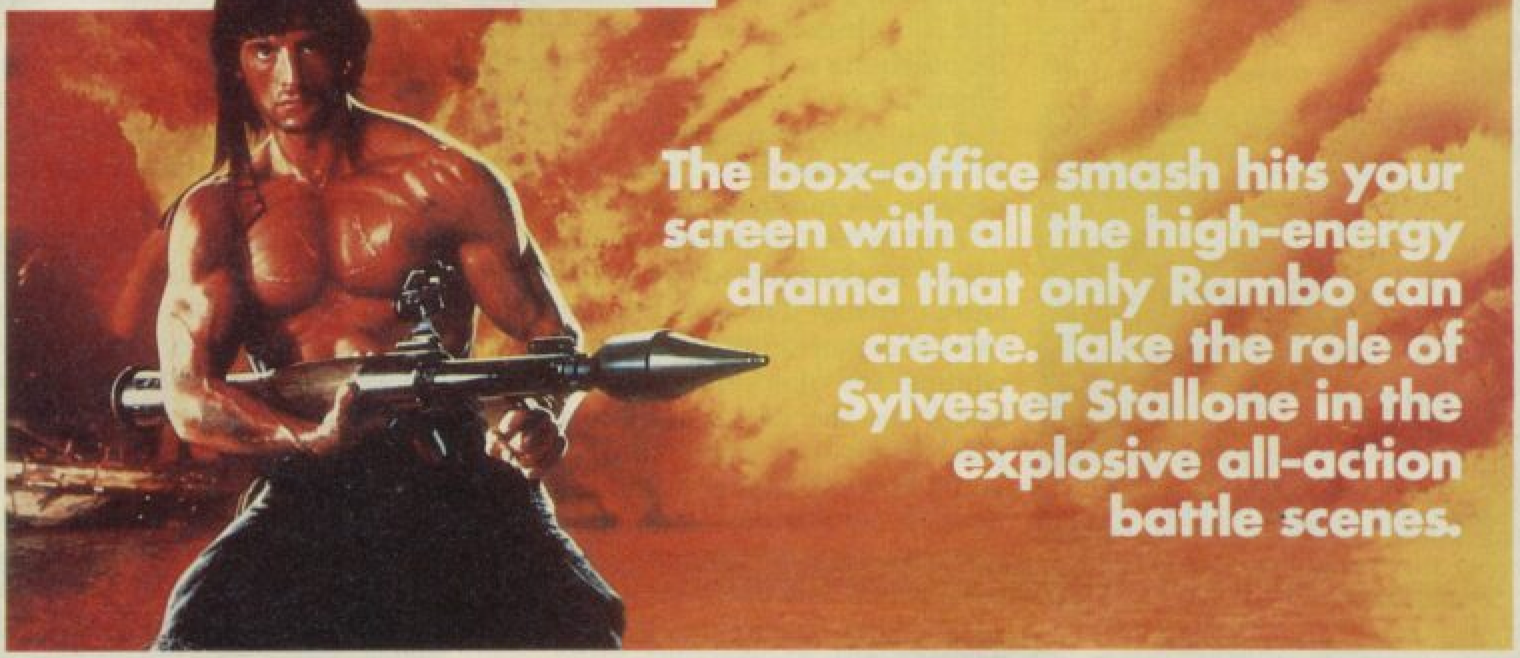
Publisher Firebird **Price** £3.95
Memory 48K **Joystick** Kempston
★★★★★

more software on page 24



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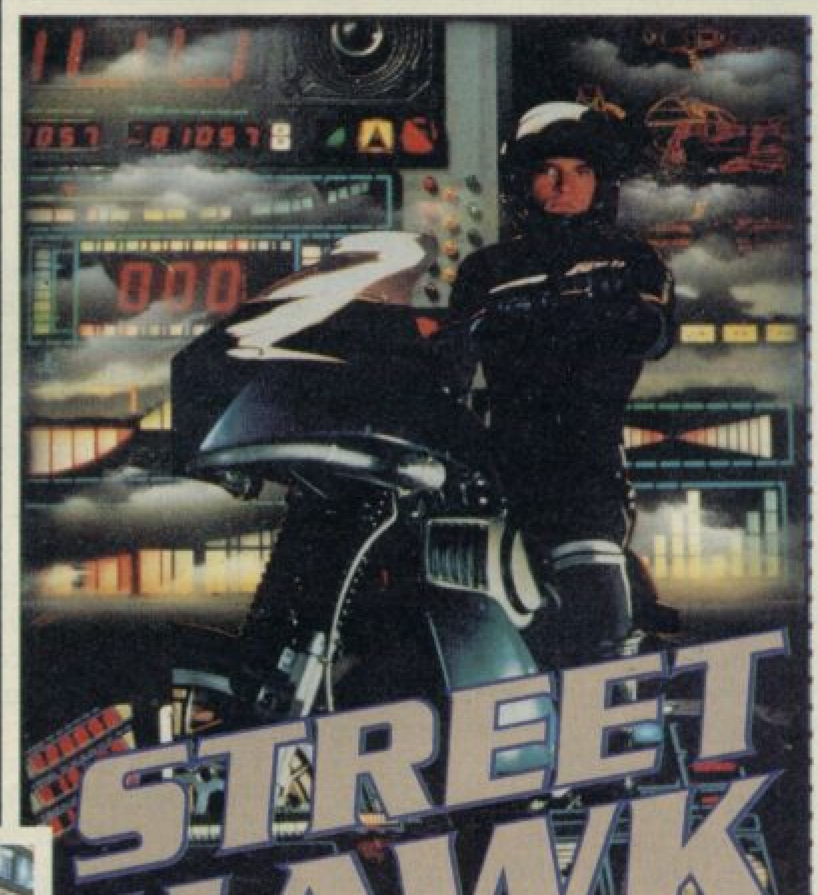
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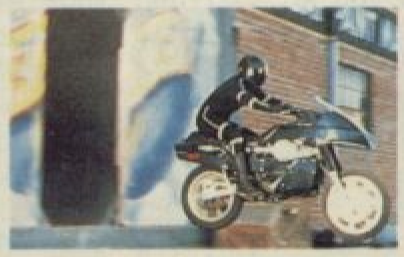


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PREVIEW

Sweevo's World

TAKING ON the might of Ultimate's graphics system is not a task lightly undertaken. Turning the whole thing into an exercise in comic invention, and then flogging it for two quid less than your usual prices as if to say, 'it's just something we tossed off in a quiet moment,' is nerve of the first order.



Sweevo's World is Gargoyle at play. The brilliant writers of **Dun Darach** and **Marsport** have turned their attention to the world of 3D arcade adventure with what looks like excellent results. We've only seen a small section of the finished game — about eight rooms or so — but on the evidence thus far, it's going to be a wonderful romp.

Sweevo is a particularly dumb robot, an electronic Stan Laurel. His task is to clean up the mess left by mad Baron Knutz and his deranged genetic experiments. Those include the goose that laid the golden egg — creep up behind and say Boo!, then see what happens — and the horrible little girl.

The game is played across four floors interconnected by trap doors and air vents. The puzzles, involving the collection of various objects, including the notorious **Knight Lore** boot, use the layout of the map to good effect. At times for example, you'll have to send objects down trap doors to land in a specific place below, to help you solve the problem.



The graphics system is almost identical to look at as those in the Ultimate games, but the movement of Sweevo seems smoother and faster. The game is full of dreadful visual puns and jokes, and should prove as funny to play as it is difficult to finish.

Scoring is by the accumulation of Brownie points, but as the cassette insert says, that is very complex and largely irrelevant. Gargoyle still beats most other companies into the ground, even when they're just 'having fun'. Watch out for a full review of **Sweevo's World** in *Sinclair User* soon, and in the meantime start saving up your pennies.

Chris Bourne

Gladiator

FOLLOWING in the footsteps of all those kung-fu programs comes Domark's offering, **Gladiator.** None of your fancy footwork here, and none of your oriental inscrutability either. This one pitches straight into the gory arenas of ancient Rome, as you pit your strength and wits against other gladiators in an attempt to win the favour of the crowd, and your eventual freedom from slavery.

It has to be said that **Gladiator** is one of the most inaccessible combat games yet devised. There are 25 joystick movements, and 45 weapons to choose from. Controlling the stick is very difficult at first. The movements include lunges to various parts of the body, four-way movement, jumping and ducking, a couple of defensive moves, cuts, throwing, and turning.

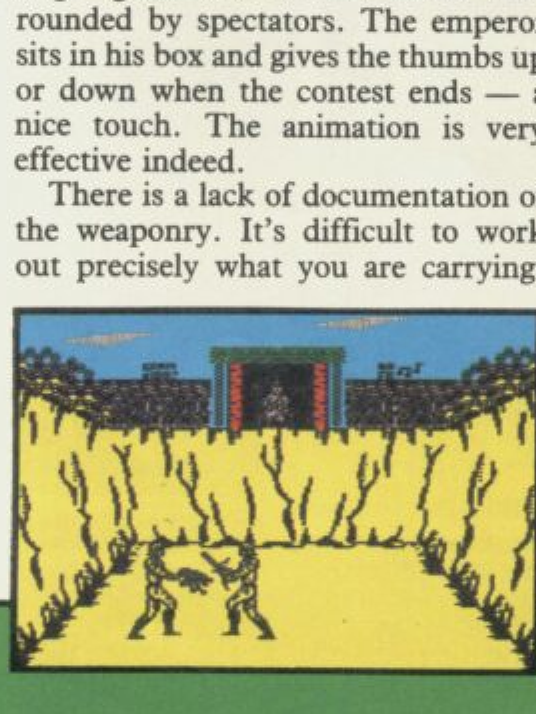
Sixteen of those are accessed by moving your joystick in one of eight directions, with or without pressing the fire button. The remaining eight are obtained by pressing the fire button twice, and the final move is a secret one — Domark invites players who discover it to write in.

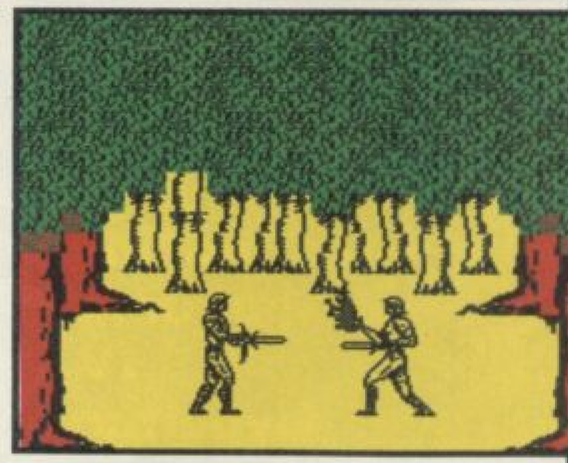
You fight with three weapons and can choose from shields, swords and spears, axes, flails, nets and tridents. The third weapon is a smaller piece such as a dagger, kept in the belt until you lose one of the original weapons.

At first it's hard to work out what's going on. However, once you realise that there's not much point slashing with a spear, or throwing your shield at the opponent, you can concentrate on a selection of the moves available. We found a shield and long spear very effective against gladiators armed with a short sword. Keep prodding long enough and down they go. However, the Spectrum soon produced net and trident men who posed different problems.

The graphics are excellent, with large gladiators in an arena surrounded by spectators. The emperor sits in his box and gives the thumbs up or down when the contest ends — a nice touch. The animation is very effective indeed.

There is a lack of documentation of the weaponry. It's difficult to work out precisely what you are carrying.





Are all the swords much the same? If not, what's the difference?

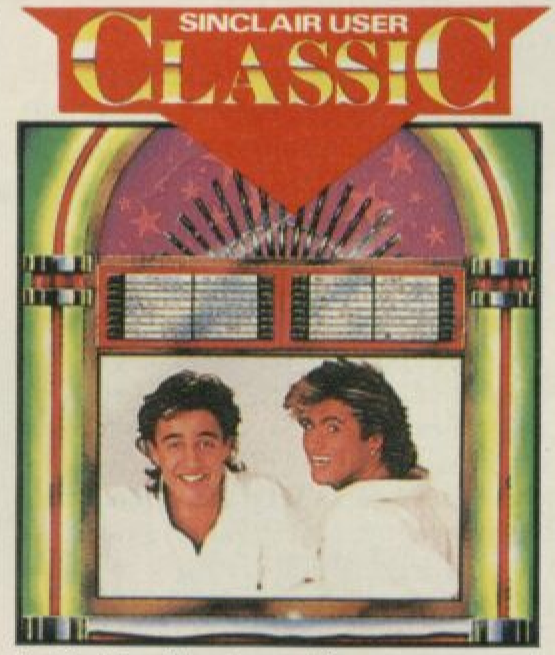
Our other small gripe is that the double-fire set of movements is difficult to access. In the heat of battle it's very easy to get the timing wrong and find youself throwing a weapon instead of moving backwards.

However, for the dexterous and the violent, **Gladiator** is a great game, well produced and certainly offering more in the way of options than any of its fellows. The play is not as fluid as those kung-fu contests, but you'll find it a hard slog to win your freedom and lay down the sword in peaceful retirement.

Chris Bourne

Publisher Domark
Price £8.95 **Memory** 48K
Joystick Kempston, Sinclair
★★★★

Wham! The Music Box



WE PREVIEWED Melbourne House's superb music program last month, and the final version lives up to expectations. **Wham! The Music Box** is clearly destined to take a place alongside classic utilities such as **Tasword II** or **Art Studio**.

The screen displays two staves, which scroll sideways, on which you write the music. The bottom two rows of the keyboard act as a piano keyboard, and all the notes are of a single length. That's not a problem as long as you work out the smallest unit you are going to need and take that as the note size. Longer length notes are simply repetitions of the same note.

The program allows you to write two-part music, with a bass line and treble. Four octaves are available, and extra functions include repeating a set pattern, adding in drum sounds — more like scratching sandpaper, but that's the Spectrum for you — and defining your own white noise effects by moving a cursor over various waveforms and selecting the one you want.

Since the Spectrum can only handle one note at a time, normally, the two-voice music comes as a shock when you first hear it. If you've got **Fairlight** or **Way of the Exploding Fist,** those tunes were written with the same routine.

Music can be compiled down to code, stored at any reasonable address, for use in your own programs, and a set of POKEs is given to alter speed, and allow you to play tunes one note at a time so that the music can be interlinked with screen action.

The alleged pop group Wham! has allowed Melbourne House to convert five of their hit singles to the system, and those tunes are recorded after the main program. Whether or not you enjoy Wham! the results certainly show off the power of the program to good advantage.

It is incredibly easy to produce acceptable music from the program. Anybody — absolutely anybody — who writes games or likes mucking about with sound should boogie on down to the stores and buy it.

Chris Bourne

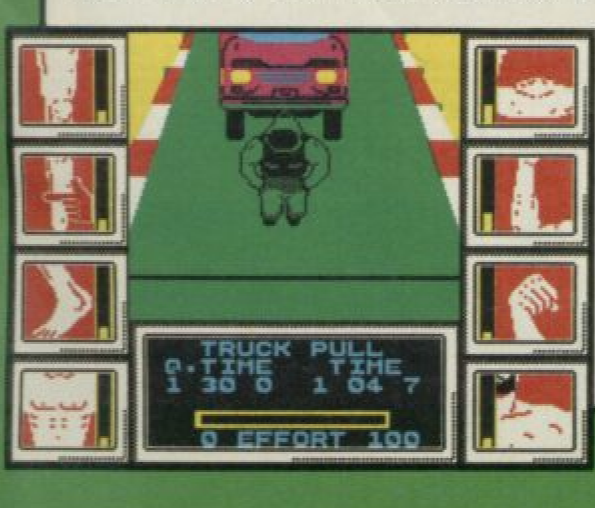
Publisher Melbourne House
Price £9.95 **Memory** 48K
★★★★★

Geoff Capes Strong Man

ARE YOU as strong as a horse, built like a mountain with muscles like a pile driver? Probably not, but if you attempt **Geoff Capes Strong Man** you will certainly sprout some muscles in your joystick arm.

The idea is to pretend Geoff hasn't got a brain. You take its place and while he proves his superior strength by towing lorries, chucking barrels and rolling over cars, you must send the stimulae to his muscles enabling him to perform those mighty feats.

Firstly, build up his muscles in a short training session which lasts all of ten seconds. Waggle the joystick back and forth, **Decathlon** style, to get his muscle rating as high as possible. You then have a few more seconds to designate some muscle to eight drawings round the side of the screen. Those are depicted as a foot, arm, chest, leg, and so on.



You will soon learn which events need more muscle and designate more to the arm or chest accordingly. If you are a wimp and can't even manage the training sessions, just press the fire button and you will be given some muscle, though not very much.

The first event is towing a lorry. As Geoff moves, the muscles he uses are outlined in yellow. Rush the pointer to that particular box and press the fire button. If you make it in time, it will flash green, then hurry onto the next muscle. There is a pattern to follow as arm, chest and leg muscles are brought into play. It is fast and you have to be on your toes. If you run out of energy on a specific muscle, Geoff collapses and you have to start all over again.

Next, the log chop — which is simple. Just wait until the blade whizzes over the section of wood you have chosen and press the fire button. The blade comes down and knocks off a chunk. Some areas are softwood, others are hardwood which may need two or three chops of the blade. The only thing that can go wrong is running out of time.

Rolling the car follows the same



mode of play as towing the lorry, but putting barrels on a truck is more difficult. The remaining two screens portray Geoff hitting a fairground bell and doing some Sumo wrestling.

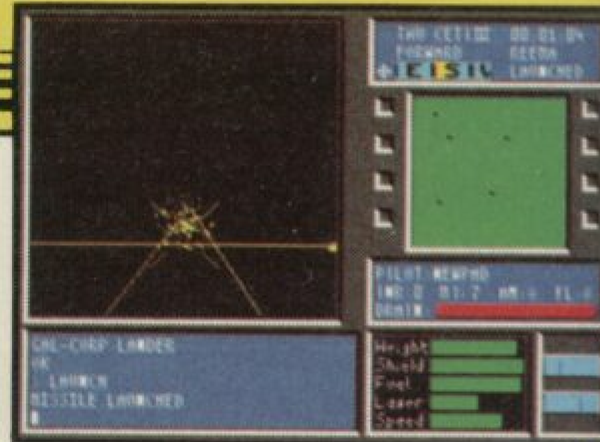
Geoff Capes Strong Man is unusual, but it soon begins to pall as the events are merely repeated each time at higher difficulty levels. Granted, another famous name has been dredged up to lend credence to the game, but at least Strong Man is different from the run of the mill sporting simulations. You couldn't call it exciting, but it will test your staying power.

Clare Edgeley

Publisher Martech **Price** £7.95
Memory 48K **Joystick** Kempston, Sinclair
★★★

more software on page 26

Tau Ceti



'A SINGLE skilled pilot might succeed where 50 would surely fail' is never a very convincing reason for taking on the robot might of an entire planet, but when it's a question of re-colonising Tau Ceti for the good of mankind . . . sucker, you're it.

For once, it's well worthwhile. CRL has produced a massive space opera in **Tau Ceti**, combining adventure, zapping, strategy, and excellent graphics in a game of enormous complexity.

You must shut down the fusion reactor in the city of Centralis which runs the robot defences of the entire planet. Collect up the fusion rods, scattered around the planet, and insert them in the main reactor.

Unfortunately, you also have to deal with the automated defences — free moving hunter-killer robots, land mines, and fortress towers bristling with lasers. Those are depicted in wireframe graphics on a window to the left of the screen, and vary depending on the time of day and how well your scanner is working.



Most of the action takes place in flight mode, as you explore the various cities looking for repair depots and reactor sub-stations — where fragments of rod can be found. When you dock with one of those havens, you enter ground mode. Text input generates a number of options, including a map of the planet which can be magnified, and a library of information on each city. The rods themselves are manipulated at this stage. Initially you only receive fragments, and they must be assembled like a jigsaw puzzle.

SINCLAIR USER CLASSIC



Movement between cities — there are at least two dozen — is by using pre-programmed jump pads, which link you to specific cities. Since cities have differing levels of defences, working out sensible routes to collect all the rods is of prime importance.

The righthand side displays a radar system giving advance warning of objects, and two targeting displays, one indicating the direction of the city centre, vital for aligning yourself with jump pads, and the other showing your base. Add to that a notepad facility for keeping track of what you've done, save and load features, and plenty of status displays for your craft, and there's not a lot left you could want.

The various buildings and nasties have carefully defined shapes, outlined in the instructions, but from a distance they look very alike. Particulary confusing are the craters, which look just like jump pads, but without a thin pole next to them.

Such a vast structure could easily become boring and muddled, but in spite of all the options the game is easy to play and hard to beat. Best of all, the scenario becomes quite convincing after a while, with real desperation setting in as the shields run out, and deepening sense of panic helped by the quality of the wireframe graphics.

It's hard to imagine a better space game, unless one's talking about **Elite**, with its intergalactic scope and strategic depth. Viewed as a shoot 'em up with a purpose to the carnage, **Tau Ceti** has to be one of the all-time greats.

Chris Bourne

Publisher CRL
Price £9.95 **Memory** 48K
Joystick Redefinable keys
★★★★★

Brainstorm

A HAUNTED castle, armies of aliens, special weapons, colour coded keys, and a frustrated little chap who bears a startling resemblance to Ultimate's Jetman make up **Brainstorm**.

The idea is to escape from the castle in one piece and that means defeating eight watchful guardians with special weapons found along the way, as well as the usual motley bunch of nasties. The guardians are unusual — no monsters, instead they include a deadly teapot, a boot and light bulb. It fairly makes you tremble at the knees.

Doors must be opened and as only three keys can be carried at a time it is a good idea to map the locations of any keys left behind, and the colour and location of each doorway.

Picking up the keys can be very frustrating. The aliens are semi-intelligent and zoom in as soon as you stop — it is very easy to pick up one key and drop another.

Your little man moves smoothly enough and the nasties rematerialise at an alarming rate. Each time you touch one your damage rating rises.

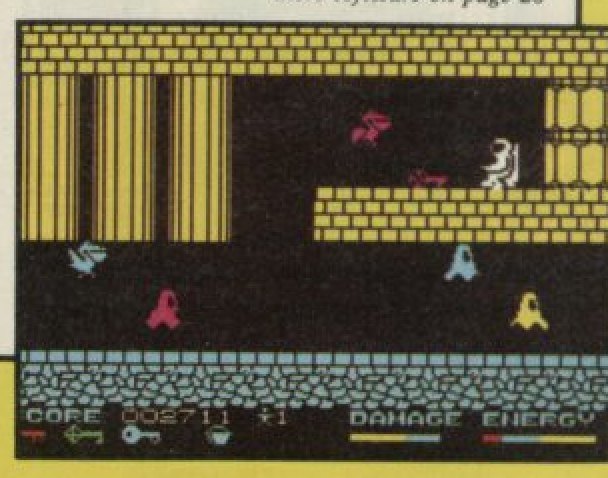
Scoring is on a percentage scale depending on how far you have explored. The graphics are up to the Bubble Bus high standard and are well designed and colourful.

Brainstorm is not original by any means, but it is based on the highly successful arcade adventure format used by so many. If by chance you have not yet grown sick of games with huge areas of alien-filled rooms then it is not a bad deal — especially for its price.

Clare Edgeley

Publisher Bubble Bus **Price** £1.99
Memory 48K **Joystick** Kempston, Sinclair, cursor
★★★★

more software on page 28





THE BEST THING SINCE THE REAL THING

A Spitfire flight simulation set in 1940. Ground features and realistic air combat.

MIRRORSOFT

Target: To rise through the ranks of the RAF elite to Group Captain, VC,. DSO, DFC

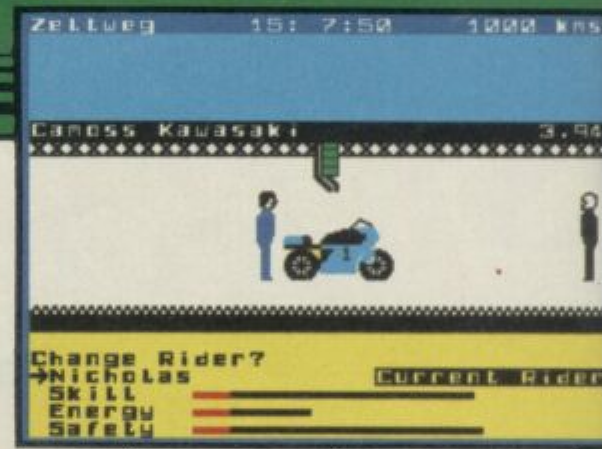
Spitfire '40 is available from W H Smith, Boots, and good software stores everywhere.





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Endurance



IF LEATHER, speed and the constant danger of fiery death appeal to you then this motorbike racing simulation will have you itching to don your helmet.

There is a choice of seven races on the circuit, most of which are run through day and night. You may want to take things easy for a while and develop your speed skills during the six hour race at Monza. Alternatively, you could try the 1000 Kilometers at Zeltweg or the 24 hour race at Le Mans.



Each bike has a team of two riders ranked professionally from trainee to expert. They have sets of predetermined character ratings for skill, energy, and safety.

The performance of your bike depends upon factors you set before the start of the race. Those include power, safety, miles per gallon and the type of tyres you use. The first three factors are interrelated. If you push power to its limits and then assign large ratings for safety and miles per gallon, the power rating will decrease.

Often something will go wrong — you may run out of fuel and be forced to make a stop. Bike numbers are displayed on the grandstand and when a problem occurs yours will light up red. If you have a monumental disaster, or crash, the number square turns white.

When the bike comes into the pit the rider gets off and you can replace him. Then you move the mechanic over the bike until the part you want is displayed in the message window. Much use is made of menus, and a joystick is handy to move the pointer arrow from one option to another without getting the numerous control keys mixed up.

As the event draws to a close the chequered flag is dropped. Determination, strategy and luck will determine whether you have the cup and points.

Endurance is an excellent simulation but rides on the back of **Formula One,** its prequel. The standard of presentation in both games is high but the pattern of play is subtly different. If you enjoy motorbike racing — and it is becoming more popular by the season — you can now have the satisfaction of running your own team.

John Gilbert

Publisher CRL **Price** £7.95
Memory 48K **Joystick** Kempston
★★★★★

Zoot

A HOST of cuddly characters bundled together with an unusual plot makes **Zoot** a winner.

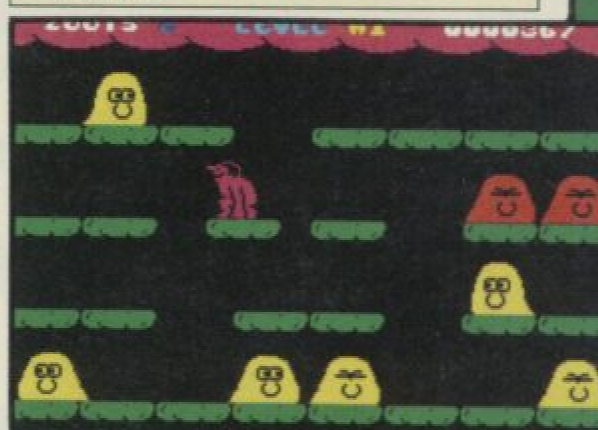
Zoot, a purple man, who is king when it comes to boxing with monsters, has lost his marbles. They rolled down a drain when he was playing with a friend and the pals have gone down the sewers after them.

Instead of muck they find caves inhabited by pillow-shaped creatures called Mankins. Each creature has a name and peculiarities of character. Bodkin is shy, Cheeky is indestructible when he has his tongue out, and Bogie has a habit which is too disgusting to mention.

There are 234 screens but each requires one or a combination of four basic skills in order to win. On the Punch Drunk screen Zoot must hit the Mankins with his boxing glove. He also has the aid of Super Zip who flies across the screen, fist to the fore, knocking out Mankins.

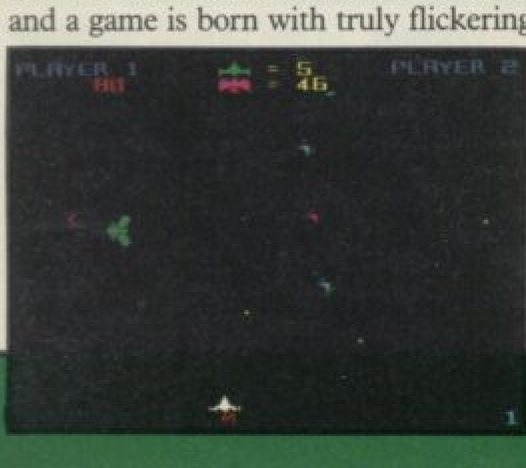
If all that excitement is not enough you will be turned on by the trimmings of the game. First there is the cartoon-style demonstration which introduces the Mankins. Then Zoot bursts onto the screen and yells in a wonderful synthesised voice 'Zoot, ha, ha, ha. . .' It's all great fun and criminally underpriced. *John Gilbert*

Publisher Bug-Byte **Price** £2.95
Memory 48K **Joystick** Kempston
★★★★★



Star Firebirds

THE PHOENIX rises from the ashes and a game is born with truly flickering displays, rasping sound and character square graphics.



Star Firebirds has nothing going for it and uses a plot which is five years old. Travel to the outer limits of the known cosmos to launch an attack on the Firebirds.

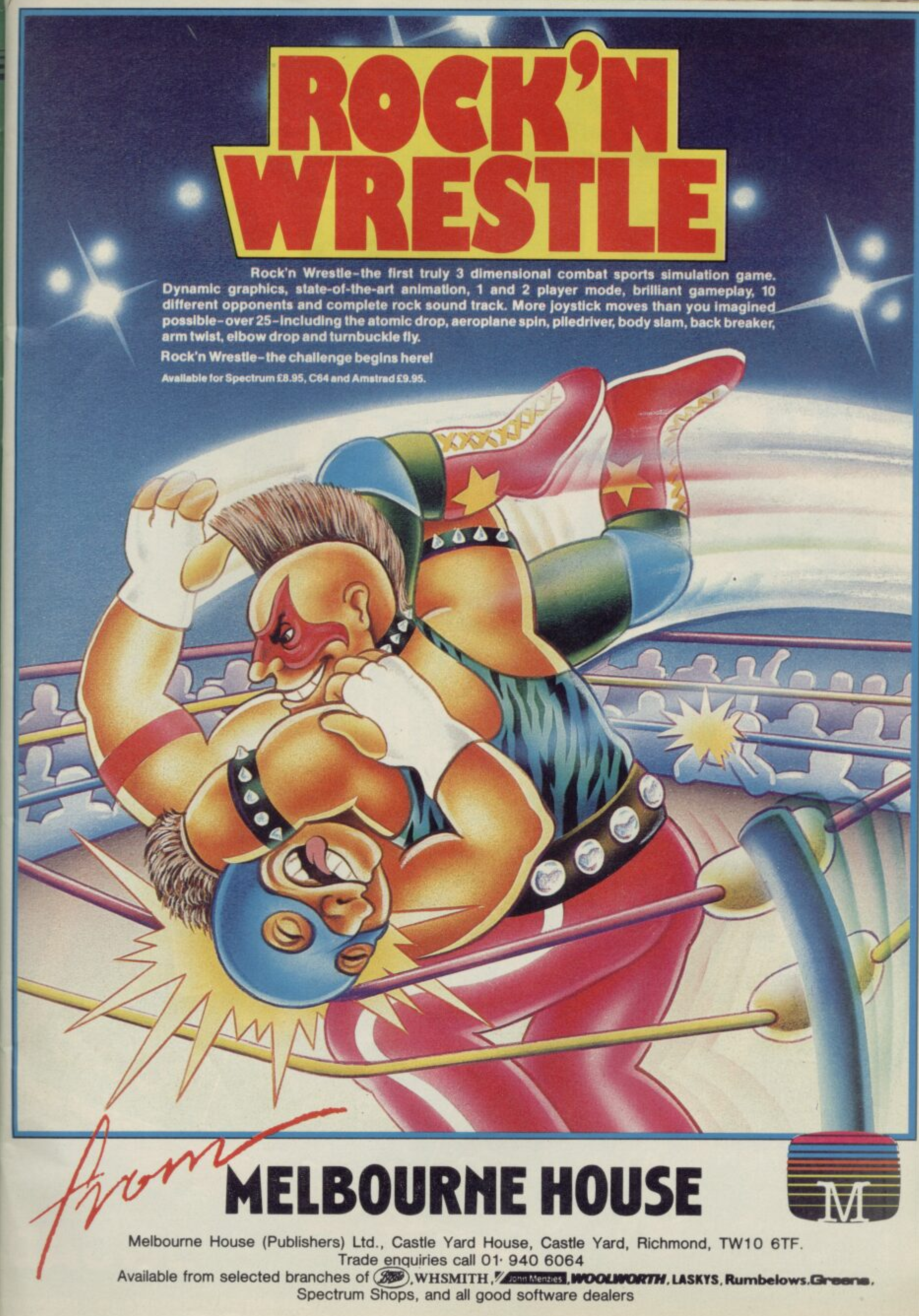
Don't worry though, the birds are so bungling in their efforts to shoot at you that all you have to worry about is getting them into your sights and keeping the laser firing.

As you travel through to higher levels the action gets faster, you will be attacked by World War Two bombs and the Firebird motherships.

I was intrigued to find that an artist had painted the screen displays on the inlay. From those the game looks incredibly exciting. If you are not of an artistic bent, you may as well ignore this game. *John Gilbert*

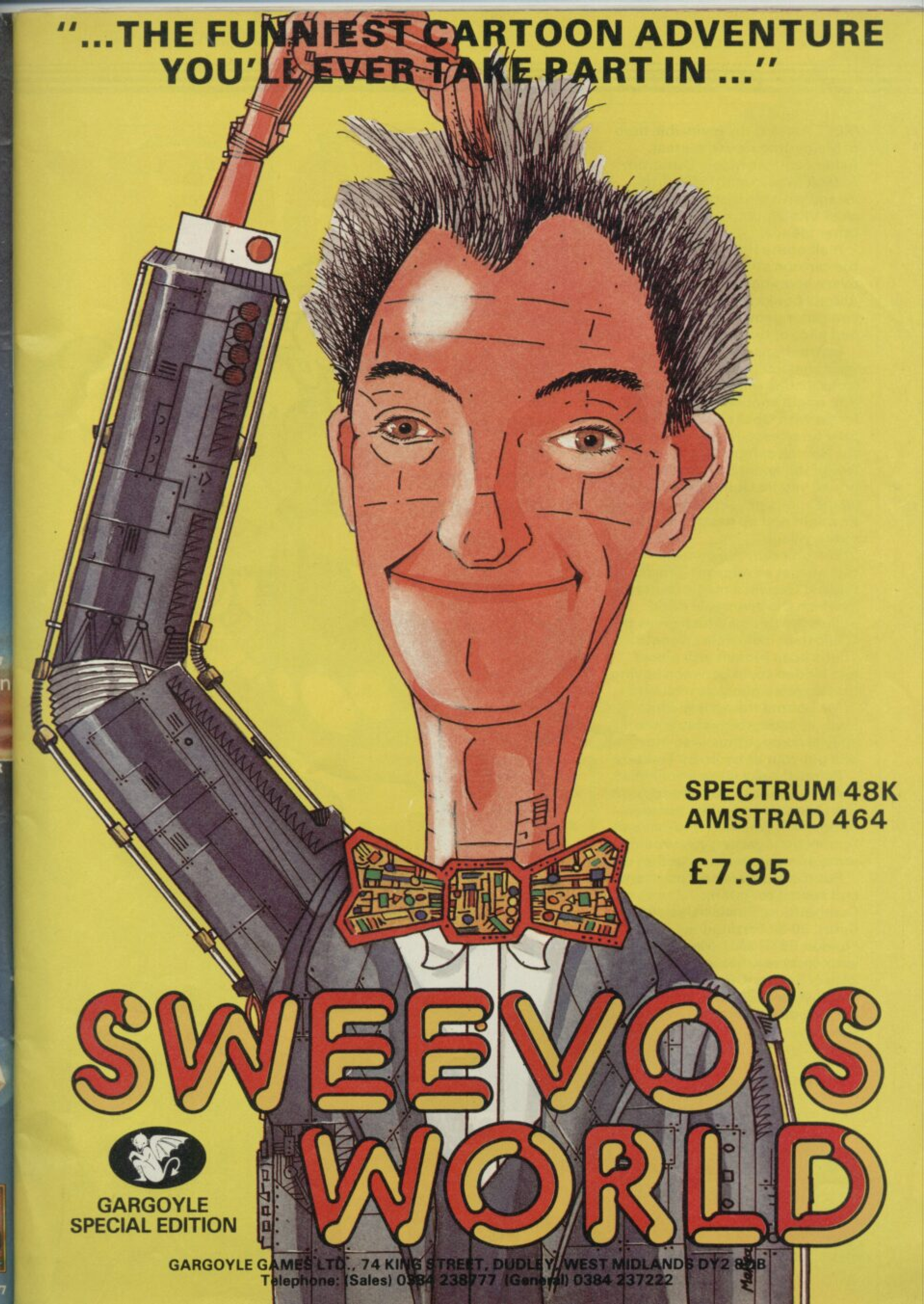
Publisher Insight
Price £7.95 **Memory** 48K
Joystick user-defined keys
★★

more software on page 118


ROCK'N WRESTLE
Rock'n Wrestle–the first truly 3 dimensional combat sports simulation game. Dynamic graphics, state-of-the-art animation, 1 and 2 player mode, brilliant gameplay, 10 different opponents and complete rock sound track. More joystick moves than you imagined possible–over 25–including the atomic drop, aeroplane spin, piledriver, body slam, back breaker, arm twist, elbow drop and turnbuckle fly.
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Asterix

GAULS & HOBBITS

MEET Asterix, the invincible hero of Melbourne House's latest, Asterix and the Magic Cauldron. Asterix lives in a little Gaulish village with his friend Obelix, his chief Vitalstatistix, and all his other friends.

Melbourne House has adapted the cartoon style — and overwhelming violence! — of the Asterix books to produce a computer game with all the fun and pace of the original.

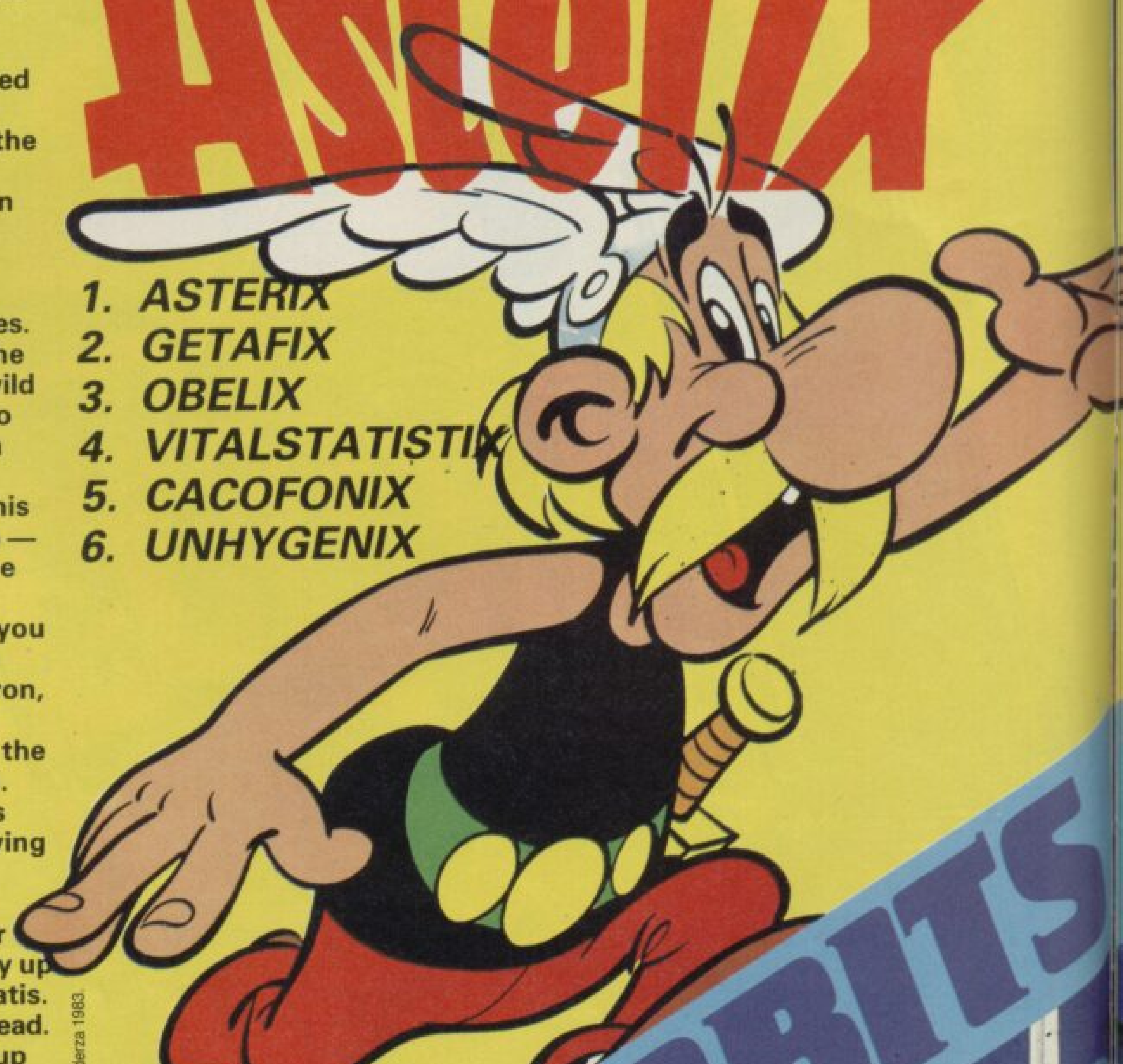
Instructions can be given to your character by pull-down icons, listing menus of activities. You might choose to go into the forest with Obelix and catch wild boar for a feast, or trot along to the Roman camp and duff up a few of the enemy. Be careful where you let Obelix unleash his tremendous physique, though — he might end up destroying the entire village.

The object of the game — if you think it's at all relevant — is to find old Getafix's magic cauldron, in which the venerable druid makes the potion which gives the Gauls their invincible strength. That's been broken into pieces and hidden so, in between having fun, there's a quest as well.

Melbourne House is giving away 100 Asterix games in our special competition — so hurry up and get your entry in, by Toutatis. Before the sky falls on your head.

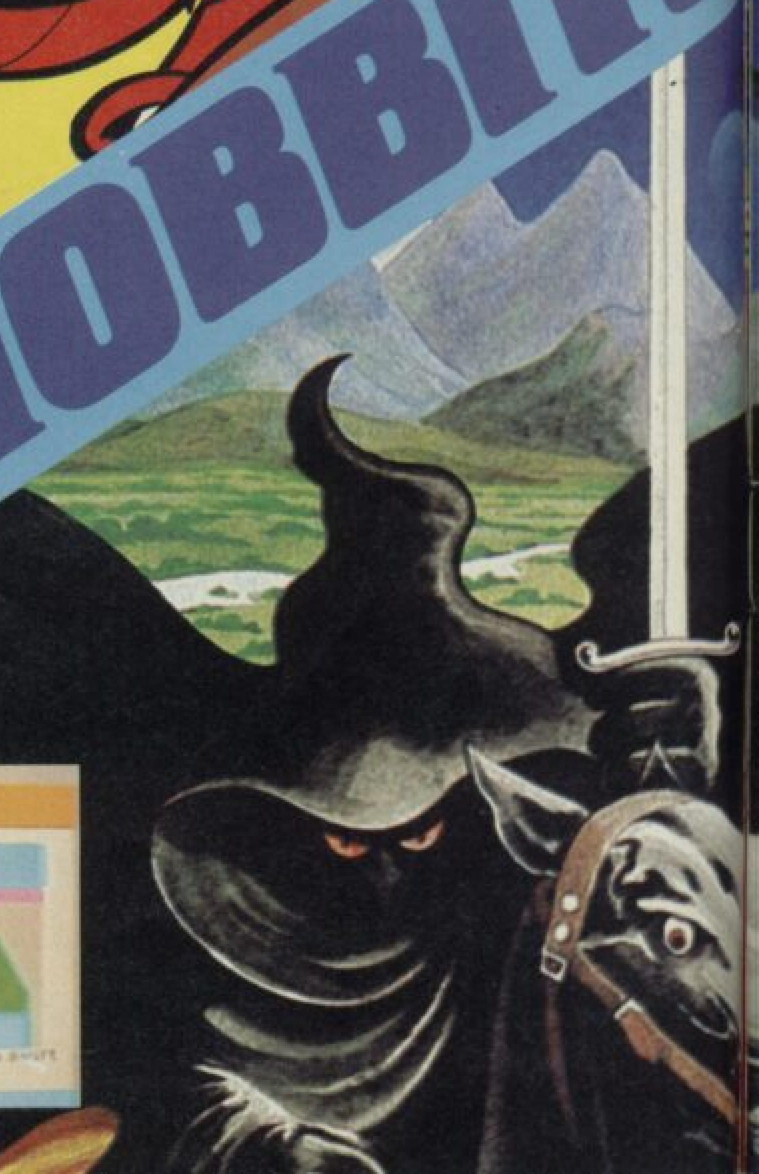
All you have to do is match up the characters with the pictures opposite. If you think the fish and Asterix go together, you would write 1A on your entry, and so on.

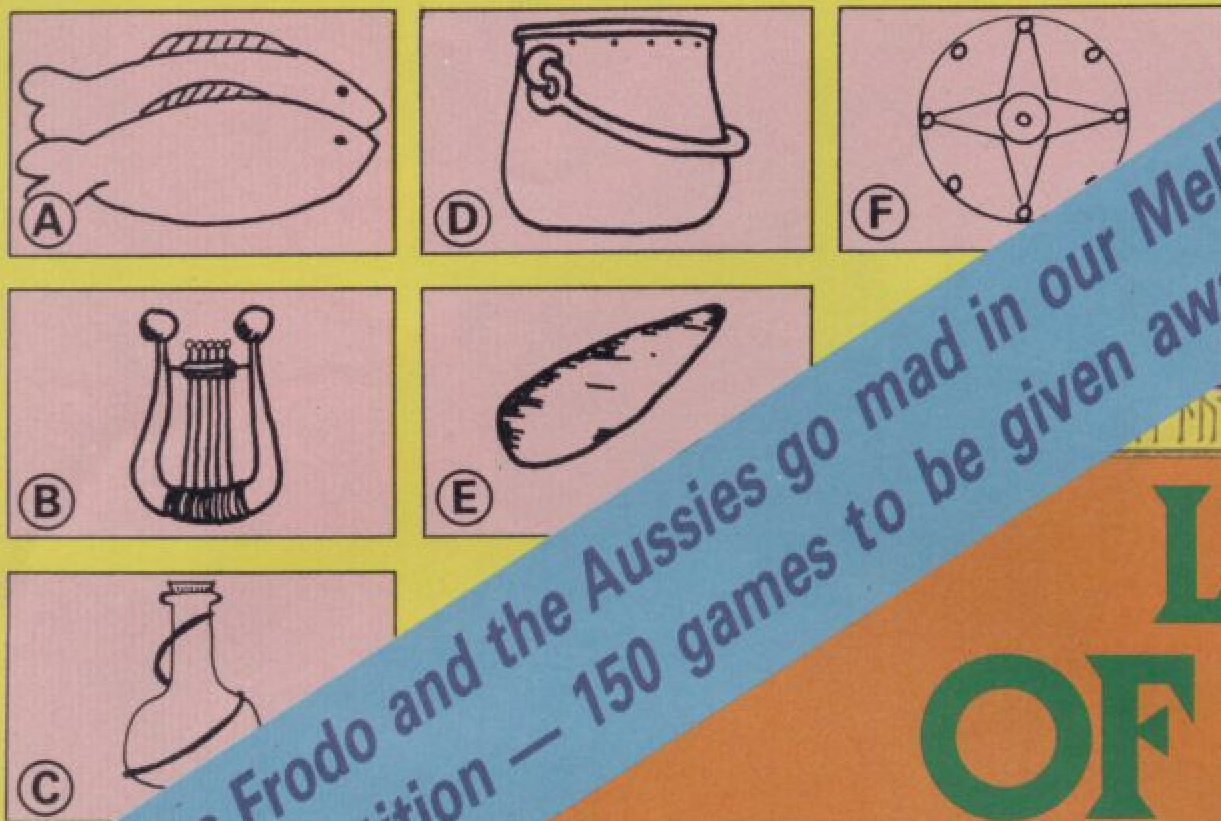
Put the answers on a postcard and send it to Asterix Competition, Sinclair User, Priory Court, 30-32 Farringdon Lane, London EC1R 3AU. Make sure your entry reaches us by Friday 24th of January. Romans and employees of EMAP are forbidden from entering.



1. ASTERIX
2. GETAFIX
3. OBELIX
4. VITALSTATISTIX
5. CACOFONIX
6. UNHYGENIX







Asterix meets Frodo and the Aussies go mad in our Melbourne House New Year competition — 150 games to be given away to the winners

LORD OF THE RINGS





FIRST, there was **The Hobbit.** *Some said it was the best adventure ever written. Others say it still is. You could talk to characters, you could admire beautiful graphic screens, you could enter the world of Tolkien's classic tale in a splendid game which became a massive worldwide success.*

Now Philip Mitchell, author of **The Hobbit**, *is back. His team of programmers at Melbourne House has produced the ultimate adventure game. The game they all wanted to write, the game we all wanted to play.* **The Lord of the Rings** *is here.*

An epic tale of heroism and magic. Tolkien's saga spans three separate programs in the Melbourne House adaptation. The first part, **The Fellowship of the Ring,** *tells of Frodo the Hobbit's realisation that his magic ring is the great talisman of Sauron, the dark lord, and must be destroyed before it is captured. He sets out with his three friends, Sam, Merry and Pippin, on an apparently hopeless quest, aided by the wizard Gandalf, and others on the way.*

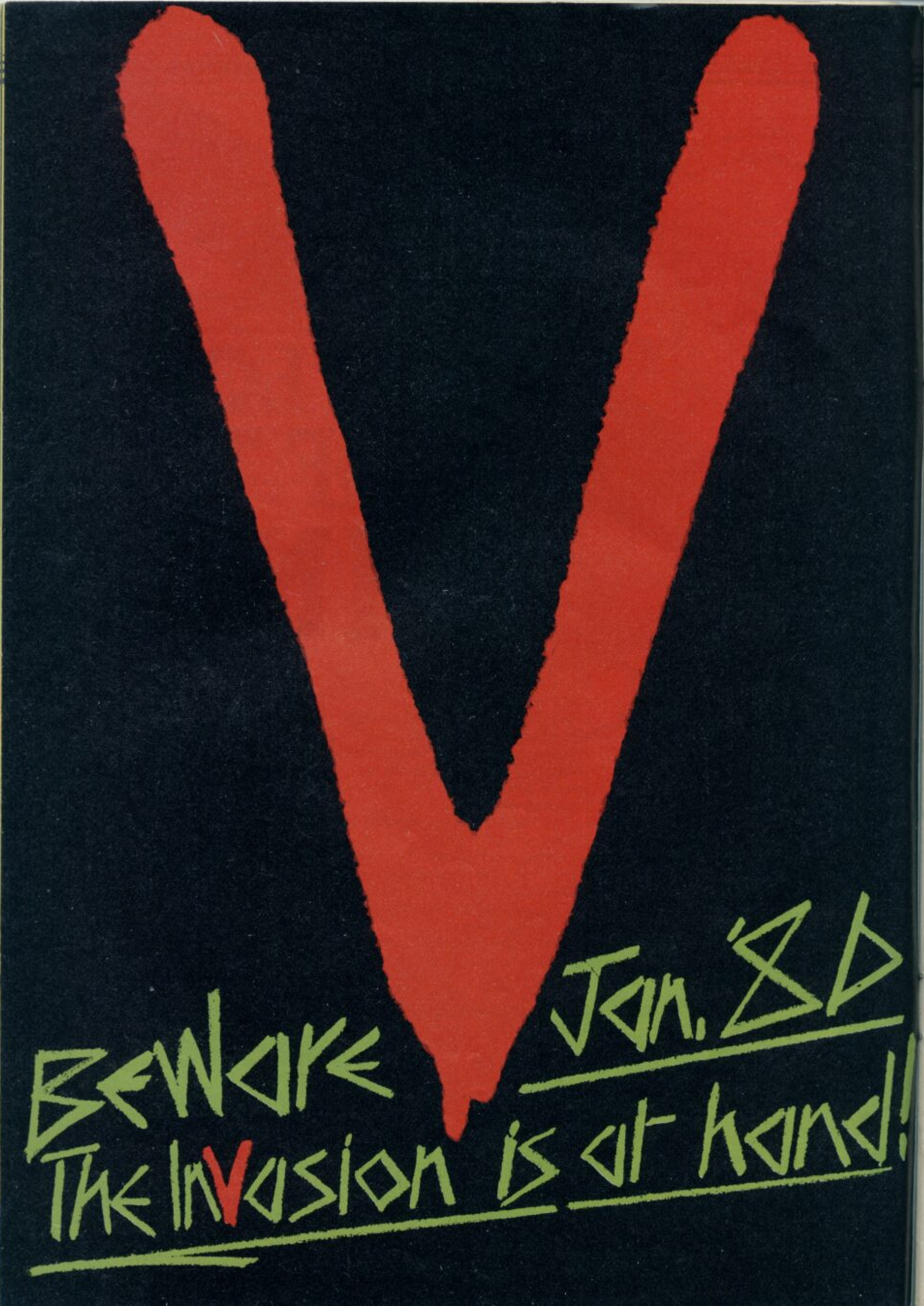
In the game, you'll choose which of the four hobbits you control — you can play with all of them or just one. An advanced 800 word vocabulary, and sophisticated programming allows the construction of complex sentences and instructions in ordinary English. There's also a beginners' game to help you get used to the system, and a copy of the first volume of Tolkien's book.

Melbourne House has promised 50 copies of the game to the winners of our competition, so you could be among the very first to play **Lord of the Rings.**

To win a copy all you have to do is unscramble the ancient runic inscriptions depicted on the stone, left. All have something to do with the Melbourne House game, but we need to find out what.

When you've unjumbled the words, write them on a postcard and send them to us at Lord of the Rings Competition, Sinclair User, *Priory Court, 30-32 Farringdon Lane, London EC1R 2AU. Make sure your entry gets to us by Friday 24th of January, and remember, those of you unfortunate enough to work for EMAP — you're not allowed to enter.*

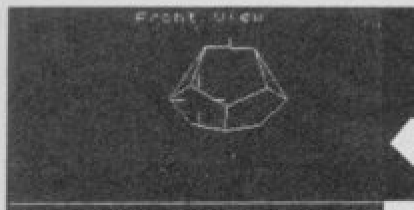
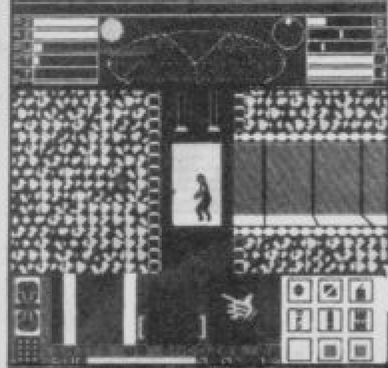
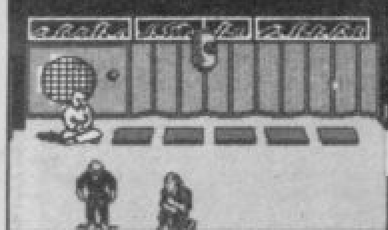
Those of you who are Tolkien buffs may have found that just a little bit easy. So we'll give a special prize — the Encyclopaedia of Middle Earth, *the standard reference guide to Tolkien's world — to the first out of the hat who can tell us the names of the three men who married elvish wives.*

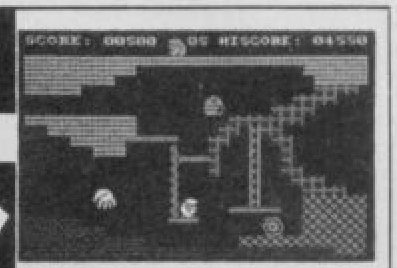

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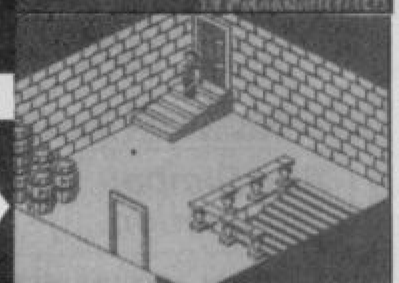
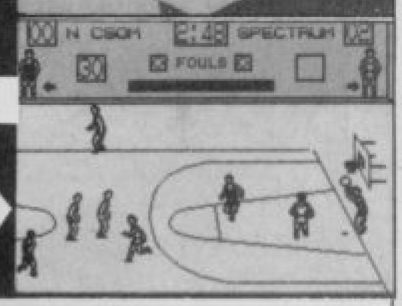
GALLUP

MONTH ENDING NOV 16

TOP 30

1	NE	ELITE	FIREBIRD
2	NE	MONTY ON THE RUN	GREMLIN GRAPHICS
3	NE	IMPOSSIBLE MISSION	US GOLD
4	⇨	DALEY THOMPSONS SUPERTEST	OCEAN
5	⇨	WAY OF THE EXPLODING FIST	MELBOURNE
6	NE	STARQUAKE	BUBBLE BUS
7	⇨	FIGHTING WARRIOR	MELBOURNE
8	⇨	FAIRLIGHT	THE EDGE
9	⇨	FRANK BRUNO'S BOXING	ELITE
10	NE	WORLD SERIES BASKETBALL	IMAGINE
11	➡	ACTION BIKER	MASTERTRONIC
12	➡	FINDERS KEEPERS	MASTERTRONIC
13	⇨	GRAHAM GOOCH'S TEST CRICKET	AUDIOGENIC
14	➡	FORMULA ONE SIMULATOR	MASTERTRONIC
15	NE	CRITICAL MASS	DURELL
16	➡	SHADOW OF THE UNICORN	MIKROGEN
17	NE	BACK TO SKOOL	MICROSPHERE
18	➡	EMPIRE FIGHTS BACK	MASTERONIC
19	➡	BMX RACERS	MASTERTRONIC
20	NE	SABOTEUR	DURELL
21	⇨	NOW GAMES	VIRGIN
22	⇨	HYPERSPORTS	IMAGINE
23	⇨	HACKER	ACTIVISION
24	NE	COMPUTER HITS	BEAU JOLLY
25	NE	GYROSCOPE	MELBOURNE HOUSE
26	⇨	BORED OF THE RINGS	SILVERSOFT
27	NE	ONE MAN AND HIS DROID	MASTERTRONIC
28	⇨	NONTERRAQUEOUS	MASTERTRONIC
29	⇨	SORDERON'S SHADOW	BEYOND
30	⇨	NIGHTSHADE	ULTIMATE

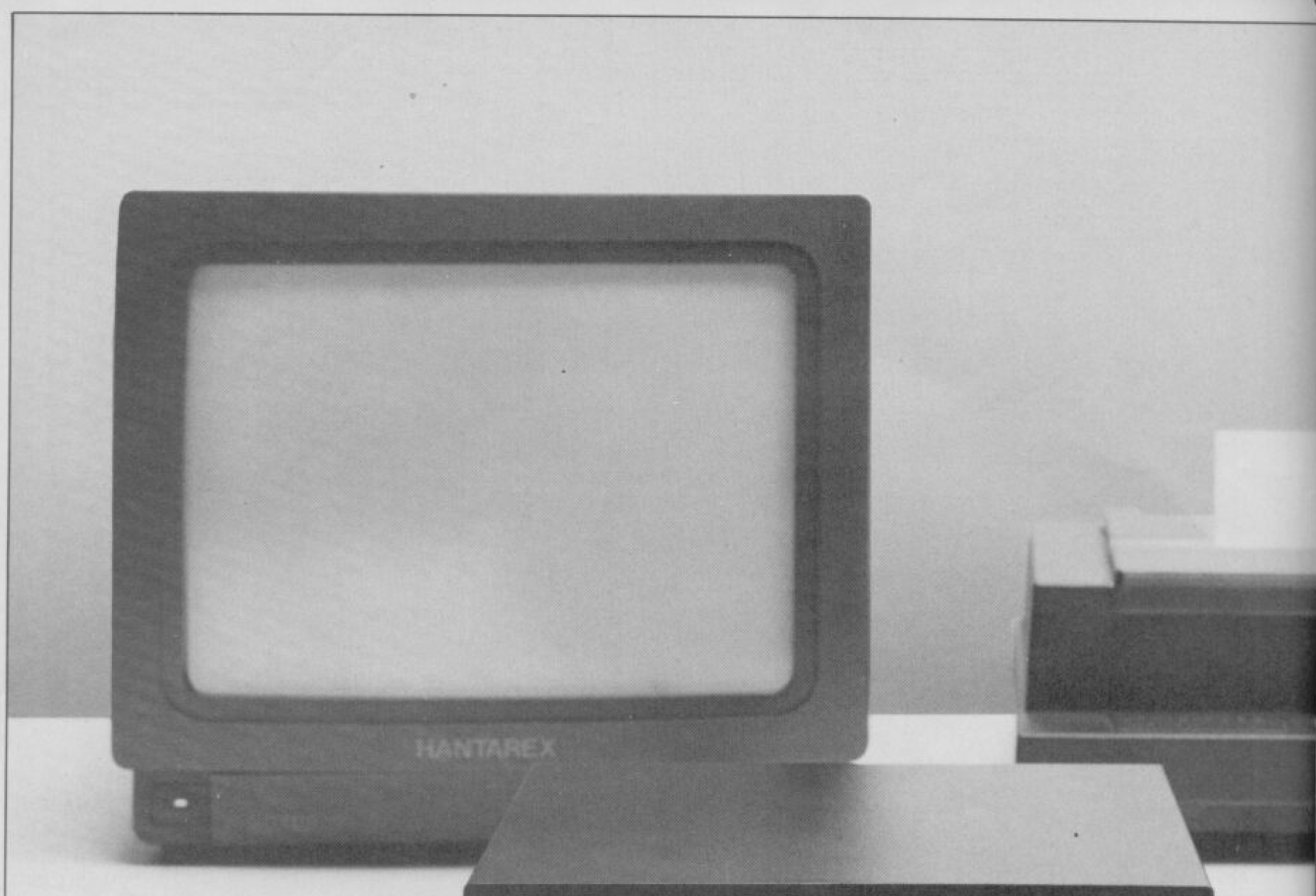
NEW ENTRIES account for more than a third of the charts this month.

Within days of release, Firebird's **Elite** became the biggest seller since Melbourne House's Exploding Fist. Close behind is Gremlin's **Monty on the Run** and US Gold's **Impossible Mission.** Other bubblers from last month, **Starquake, Critical Mass** and **World Series Basketball,** have also entered in healthy positions, while **Back to Skool, Saboteur** and **Gyroscope** have appeared from nowhere. Many popular games have disappeared, including **Highway Encounter, Jet Set Willy 2** and **Softaid.** Ultimate's **Nightshade** has bombed, barely holding on at number 30.

Of the bubblers, System 3's **International Karate** is likely to do well if initial sales are anything to go by. CRL's **Tau Ceti** and Odin's **Robin of the Wood** are ones to watch for.

BUBBLING UNDER

ASTRO CLONE	HEWSON CONSULTANTS
BC'S QUEST FOR TYRES	SOFTWARE PROJECTS
THEY SOLD A MILLION	HIT SQUAD
TAU CETI	CRL
INTERNATIONAL KARATE	SYSTEM 3
NEVERENDING STORY	OCEAN
ROBIN OF THE WOOD	ODIN
THUNDERBIRDS	FIREBIRD
GEOFF CAPE'S STRONGMAN	MARTECH
BEACH HEAD 2	US GOLD


HANTAREX
Opus.


Opus.


PERIPHERAL
THROUGH
CONNECTOR

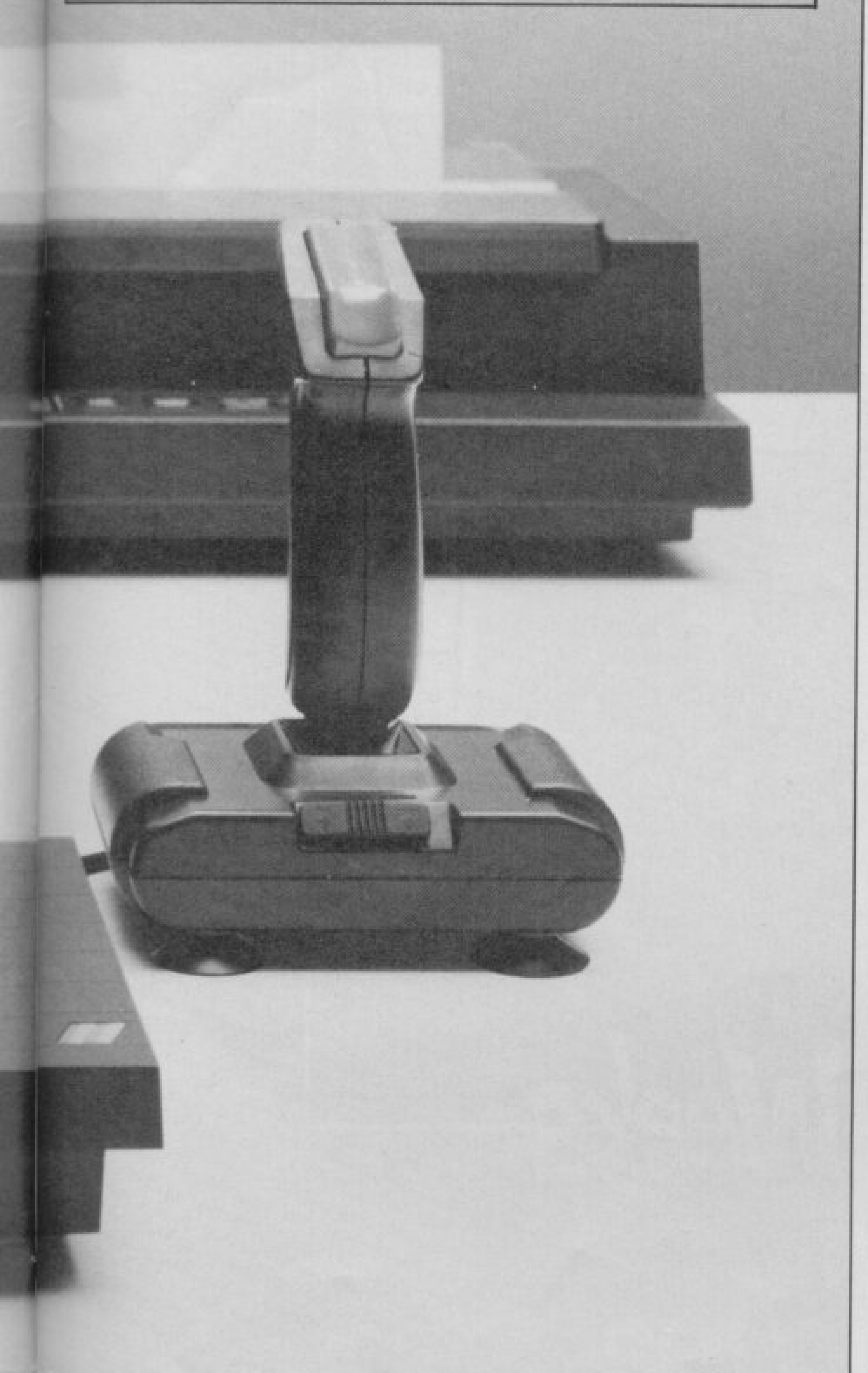

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PRINTER
PORT


VIDEO
CONNECTOR

TECHNICAL DETAILS

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Double density disc interface
Parallel printer interface
Joystick interface
Video monitor interface
Peripheral through connector
Built-in power supply
Utilities on ROM including format and verify
RAM disc facility
Random access files fully supported
Connections for second drive upgrade
Comprehensive user manual

Total: £199.95 inc. VAT



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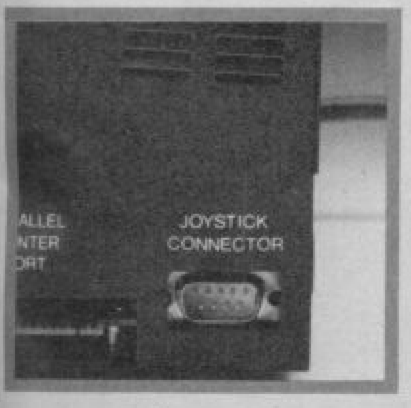
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"Recommended" – Sinclair User Buyers' Guide

Opus. Opus Supplies Ltd

**Opus Supplies Ltd,
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Redhill, SURREY RH1 2LW.**

Gremlin's Festive Trivia Test

SICK of Christmas parties? Fed up with New Year's Eve knees-ups? Feel the urge to scream 'grosso mundi' at the latest dried turkey sinew sandwich?

Relax, gentle punters, with **Gremlin's Festive Trivia Test.** Better still, forge your own *Trivial Pursuits* cards and then you too can join in the traditional holiday aprés blow-out activities with a chance of winning for a change.

Gremlin has ransacked his dusty files to provide searching questions to test your knowledge of gossip, hype and the duller parts of obscure games . . . Most of the answers have appeared one way or the other in *Sinclair User* over the past year, but a few you'll never get, not ever.

After all, who says Gremlin has to be fair? Where does it say that in writing? Is it a law, yet? Is it . . . (Back to your cave, vile beastie . . . Ed)

1 Who said of whom . . .

(a) 'He does have a habit of announcing machines before they are ready';
(b) 'I'm more of an industry figure than he is, and I'm a nobody';
(c) 'He has invented many wonderful things, such as the telephone';
(d) 'He's resting. He's distressed by all the publicity'?

2 Royal Flush

(a) Who went skiing with Princess Stephanie?
(b) Who was once known as the King of Liverpool?
(c) Who is Prince's favourite pin-up?
(d) Who set Gordo on the quest to Maru?

3 What's in a name?

Who is/are . . .
(a) The Kindergarten;
(b) Slugger;
(c) Repellent;
(d) The Bouncing Czech?

4 Which Sinclair User Hack . . .

(a) Said the QL was a botch — in front of millions;
(b) Won an award for services to Activision;
(c) Junked his QL in favour of an Amstrad;
(d) Wrote about his experiences in a health farm?

5 Star Quality

(a) Who persuaded Ian Dury to sing on his game?
(b) Who was told to **** off by Bob Geldof?
(c) Who recorded the 'semi-legendary dance-hall stroll smash hit *Night of the Werewolf*?
(d) Who digitised Wham!?

6 The Difficult Bit . . .

In 5(a), (c) and (d) — what is the relevant software?

7 Heroes

(a) Which mechanic had a midnight snack and lost his son in a department store?
(b) Who dug for gold and blew it all on a flash mansion?
(c) Who escaped from a snowball fight and ended up in paradise?
(d) Who got drunk and set fire to his house after entering the Olympics?

8 Villains

(a) Who imprisoned Loeg the Charioteer?
(b) Who pinched the money from the Midminster Bank?
(c) Who couldn't remember his birthday until Eric reminded him?
(d) Who are the Elite's worst enemy?

9 What have the following got in common . . .

(a) Douglas Adams, Clive Sinclair, £1,000;
(b) Imagine, Tansoft, OCP;
(c) Prism, GOSH, Maxwell House;
(d) Telephones, Matthew Smith, Baseball?

10 Which is the odd one out . . .

(a) Gift from the Gods, Shadowfire, Gyron;
(b) Imagine, Tansoft, OCP;
(c) Barcelona, Valencia, Madrid;
(d) Venetian blinds, Dralon, dead flesh?

11 The Rag Trade

(a) Which mag helped advertise baked beans?
(b) Which rag fought a pitched battle with CRL?
(c) Which paper flaunted its hairy armpits?
(d) Which publication's journalists were asked to work for nothing?

12 Gladly missed

Who was responsible for . . .
(a) 911TS;
(b) Therbo;
(c) Hareraiser;
(d) Software Superstar?

13 Naughty Naughty

Which game is associated with the following:
(a) A semi-nude dance act at the PCW show;
(b) The 'Readers' Wives' section of *Fiesta*;
(c) Royal breeding habits;
(d) Raping the android?

14 Great bugs of history

(a) In which game does Dr Jones cause havoc with the monks;
(b) Which adventure had a location which was permanently 'too full' to enter;
(c) Who has an unnerving habit of sitting on your lap?

15 Pseuds' Corner

Who produced the following jargon to describe the mega-mega programming in their games:
(a) Animaction;
(b) Isometric graphics;
(c) Primary imbalance;
(d) Inglish?

GREMLIN'S FESTIVE TRIVIA TEST — THE ANSWERS

ANSWERS: 1 (a) Clive Sinclair on Jack Tramiel; (b) Mark Cale on Andy Shafte; (c) Robert Maxwell on Clive Sinclair; (d) Alan Maton on Matthew Smith. **2** (a) David Ward — so he denies; (b) David Ward — so he claims; (c) Sylvester Stallone in Bored of the Rings (pt 1); (d) Prince Janga. **3** (a) Elite; (b) Clive Sinclair; (c) Tim Metcalfe of *C&VG*; (d) Robert Maxwell. **4** (a) Chris 'lunchbreaks' Bourne, on Newsnight; (b) Bill 'incorruptible' Scolding; (c) John 'disgusting' Gilbert; (d) Gordo Greatbelly. **5** (a) Mel Croucher; (b) Colin Johnson of Mastertronic, at the British Rock and Pop Music Awards; (c) Lee Kristofferson; (d) Melbourne House. **6** Deus Ex Machina, System 15000, Wham! The Music Box. **7** (a) Wally Week; (b) Miner Willy; (c) Kim Kimberley; (d) The Pi-Man. **8** (a) Skar the Sorceress; (b) Vinchetta; (c) Mr Creak; (d) The Thargoids. **9** (a) *So Long and Thanks for All the Fish*; (b) Bruce Everiss; (c) Paul 'hermit' Duffy; (d) Colin Stokes. **10** (a) Gyron — the others were written by Denton Designs; (b) OCP. It's still solvent; (c) Valencia — it's got nothing to do with the Spectrum 128; (d) Dralon — it's got n othing to do with the Spectrum. **11** (a) *Yawn Computer*; (b) *Computer and Vegetable Games*; (c) *Computer Trade Weekly*; (d) *Personal Computer News*. **12** (a) Elite; (b) Arcade; (c) Haresoft; (d) Silicon Joy. **13** (a) Twister — Mother of Charlotte; (b) Football Manager; (c) Di's Baby; (d) Ship of Doom. **14** (a) Jet Set Willy; (b) The Hobbit; (c) Dr Watson. **15** (a) Ultimate; (b) New Generation; (c) The Edge; (d) Melbourne House.

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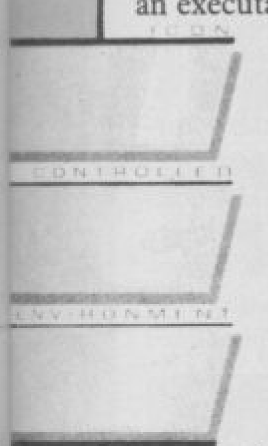
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ICE

PROVE THAT YOUR machine can be a GEM and imitate the icon driven operating system on the Atari ST.

The package uses icon conventions similar to GEM with a few exceptions. For instance, the icon used to boot a program looks like a gout-swollen foot. Once booted, the package which is supplied on ROM, displays the main icon menu.

At the centre of the screen resides the empty workspace window, above which is displayed the real time clock and the date. The screen is used mainly for displaying device directories in icon form. The picture of a cartridge labelled EX, with QUILL displayed under it, means that the cartridge in the present drive contains an executable machine code file called QUILL. If the icon portrays a disc the file would be held on disc.



Below the main window are device specifiers, defaulted at drive one. You can load and save using microdrive, disc, or RAM disc. Drive numbers can be changed by placing the arrow-shaped action cursor on one of the large arrows surrounding the device number. The left arrow decreases the number while the right arrow increases it. To execute the cursor action just click — push — the space bar twice.

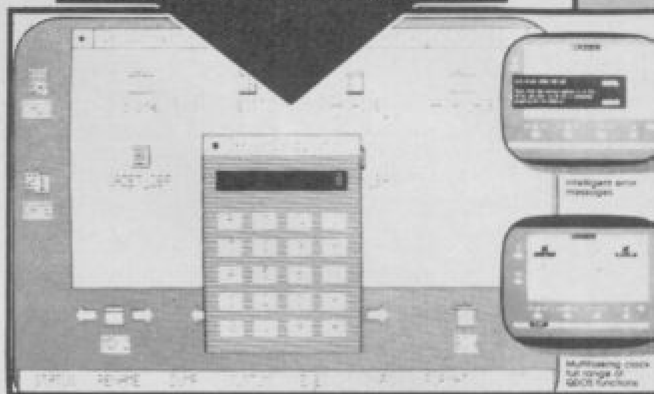
By clicking twice on a device icon a file directory can be obtained, and by repeating the operation on one of the file icons in the directory a file can be loaded and run. It is a simple process, much easier than having to type in LRUN MDV1 BOOT. Files can also be deleted from any device using the dustbin icon in the device driver display. Simply select a file from the directory window and then select the dustbin. You are asked whether the operation is okay or whether you want to cancel before the file is scrubbed from the current device.

Below the device driver icons is a bar which displays system and file commands. Those provide a system status report, rename files, list a file in ASCII format and gain information on a file. Commands have also been included to set up the clock and date, and define types of printer. An option is also included to set system response rates — such as clicking time.

The most useless function of **ICE** is the calculator, which Eidersoft probably included just because GEM has one. It includes a single key memory and a percentage button which are operated using the arrow cursor.

Also included in the package is the aptly named Choice, which will multi-task up to four packages, including the Psion business suite. To produce the multi-tasking effect, select it from the menu at which point a new menu showing tasks from one to four will appear. Select the task you want to

SINCLAIR USER CLASSIC



define and you will be asked how much data space it will need. Usually about 30K is enough, though even with that small memory requirement the four programs in the Psion suite would require additional memory.

Choice can also set up RAM discs, areas in memory formatted and accessed in the same manner as a disc. Once you have run the Install program, provided with Choice, you must go back to **ICE** and format as many discs as you require, depending once again upon the amount of memory you have available.

ICE operates best with at least half a megabyte of RAM and disc drives. Its multi-tasking features are its major attraction, although the operating system is so easy to use that it can be recommended to anyone with a QL.

John Gilbert

Publisher Eidersoft **Price** £59.95
Joystick and mouse compatible
★★★★★

Keydefine

TYPING OUT long lines of SuperBasic over and over again, or writing the same address at the top of a series of different letters is a chore with which QL users may well be familiar.

Although there are a number of products designed to help business users with a variety of areas where Psion software starts to leak at the seams, most are rather too specific in application for general use.

Keydefine is a raw system which allows you to write virtually anything from a complete program to a Quilled letter and access it from a single keystroke. Apart from standard boot and copy routines, it includes three programs for holding the key definitions, and a master routine, Define.

Define simply asks for the name of the _key file to be altered, and then the key on which the data is to be stored. Quill_key enables you to set margins, store standard addresses or indeed any block of text, and have it printed to the screen wherever you require it.

Basic_key allows you to define keystrokes for use within SuperBasic and those could include complete programs with line numbers, although you would then have to be careful as to which numbers you used.

Finally, there's asm_key, which is designed for use with an assembler/editor so that you can insert preset routines again at the touch of a key.

All the functions are accessed by holding down Caps Shift and pressing the appropriate key, which could be anything from F1-F5, A-Z or 0-9. Included with each of the three main programs is a set of predefined routines for some of the available keys. Those vary from the trivial — EDIT or PEEK — to rather more useful routines such as window definition or a KEYSCAN routine for the assembly language version. All routines are protected from NEW.

You can put up to 2K of material on each key, although you may find yourself squeezed for memory if you're still using **Quill** 1.03. But the usefulness of the program really depends on the user — if you do write a lot of letters on **Quill**, or have pet routines you're always using in programs, then you'll get your money's worth from **Keydefine**. *Chris Bourne*

Publisher Psientific
Price £9.95
★★★★

continued on page 42

The Pawn

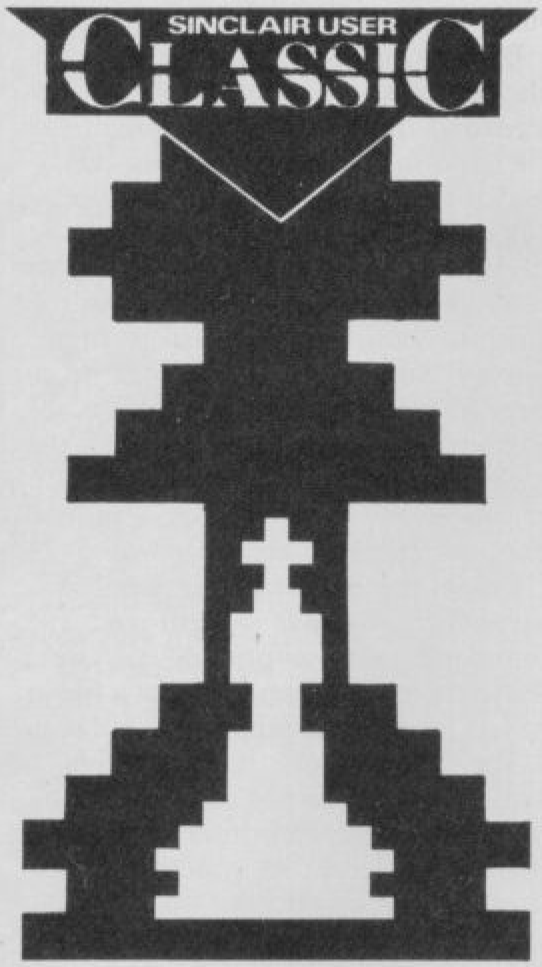
GO ROVING in Kerovnia, a magical world which is going through a period of social upheaval.

King Erik, the ruler of the land, is beginning to lose his grip on his subjects and can no longer rely on their solid support during times of trouble. The king has not been the same since his wife was assassinated and two factions have been keen to implicate the dwarfs in the affair. The dwarfs controlled the drinks market in Kerovnia, but now the Farthingdon Real Ale Company and the Romni gnomes are fighting for control.

When you arrive in the land, with a sleepy headache and kitted out in pyjamas, a general election is on the horizon and the king is in a very crotchety mood. Not only must you find the solution to the problem posed in the adventure but you must also track down the problem.

You start on an uninspiring path which passes through a rank forest and grassy plain. In the distance you can see the foothills and beyond, a host of snow-capped mountains.

It is easy to find many of the important locations in the adventure but another matter to enter them. The Golden Palace, for instance, is guarded by two violent looking fellows. You can talk to them in a manner similar to that of The Hobbit, from Melbourne House.



You are at the palace to present a letter from Kronos the magician to King Erik. Unfortunately, those guards will not take you to him unless you give them something. You can talk to them until you are blue in the face and they will answer, using an Eliza routine within the program, but you will need those objects.

Objects and money play an important part in the game. Honest John is the man to talk to if you want to equip yourself for adventure. He can supply silver armour, spring water and distilled whiskey but you will have to pay with fergs. If you don't have any money he will tick you off and stomp into the distance.

In a hut, on a hill, you will find another unhelpful character who has a problem with time and reality — or is it you who is confused? You can eat the rice in the bowl at his feet but if you try to get at his cupboards he will kick you.

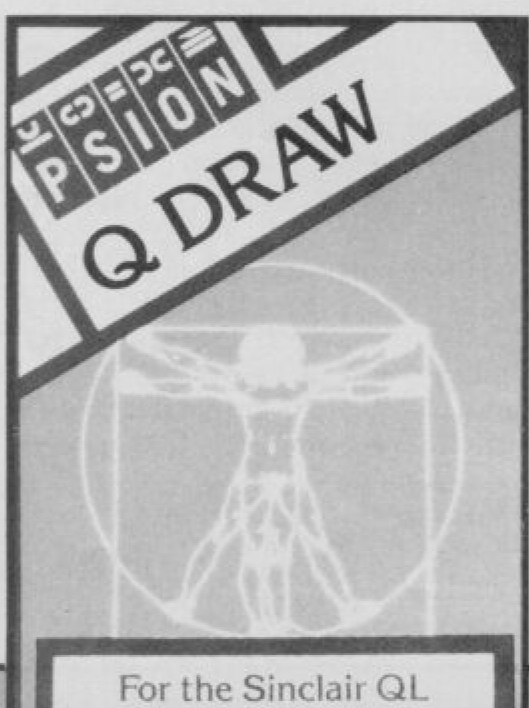
The Pawn is a text-only adventure, but what text! The descriptions can be set to be as long or short as you want them and once you are into the game it is like reading an interactive novel. Although I have not yet caught up with the object of my quest, I am sure I will be playing the game long after this review has reached you.

Although it is not particularly innovative, **The Pawn** has the feel and depth of those infamous Infocom adventures which have, for so long, held the attentions of every disc-owning Commode 64 lover. Long live King Erik and **The Pawn.** *John Gilbert*

Publisher Sinclair Research
Price £19.95
Memory 128K
★★★★★

Q Draw

THE SLOGAN 'as used by professionals' conjures images of a package which will work wonders but the maxim does not hold true for the Psion **Q Draw.**



The package is apparently based on a utility used by Psion artists to design screens for **QL Chess** and **Match Point.** Looking at its capabilities they would have been better off using **GraphiQL,** from Talent, or even **Sketchpad** from Sigma Research. It is capable of pixel plot and line drawing — using rubber banding — but does not include circle, arc or ellipse facilities which most other QL and Spectrum packages contain.

It is, however, possible to define a shape, such as a circle, and store it, on microdrive or disc, as part of a library of such designs. Shape drawing mode is entered using F4 and then drawing the outline of the shape using a cursor.

When the outline has been defined, a number of options are open to you including colour fill, moving the shape to another part of the screen, replicating the shape, and dropping a shadow from it.

Once defined, shapes can be incorporated into screen displays which in most cases is faster than having to draw each shape by hand each time you need it. Inclusion of an arc command would, however, have been useful.

Q Draw does not have the power and versatility of **GraphiQL** and is less useful than Spectrum packages such as **The Artist,** from The Edge, or **Art Studio,** from Firebird. No company can be expected to have a winner with every new launch but with a bit more attention to detail **Q Draw** could have been on its way to Classicdom.

John Gilbert

Publisher Psion **Price** £14.95
Joystick
★★★

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Converting to analogue

I AM interested in Z80 machine code and would like to experiment with an analogue joystick. I have a potentiometer stick, but as the Spectrum has no A/D converter I need an interface to do the job.

I have decided to buy one and if necessary, another joystick. Can you tell me of any firms which sell them?

Stephen Holland,
Higher Tatham,
Lancaster

● *A kit which could be adapted to your needs is available from Maplin Electronics Supplies Ltd, PO Box 3, Rayleigh, Essex SS6 8LR. Tel: 0702-554155.*

Double Dutch modem talk

IN THE November issue there was a query about the WS2000 modem and Interface 1. Since April, I have been using a Dutch Viewdata and terminal software with my Spectrum Plus. The only problem is that the IFi doesn't have a real RS232 full duplex mode, so when the host is TXing I can't interrupt.

The options on the Viewdata program include: TX log on code, store a frame or range of frames, Save and Load frames and telesoftware downloader and printer. The terminal software includes every baud rate up to 9600 baud, split baud rates for TX and RX, half or full duplex — you can suppress the echos, and parity selection.

Ben Erkens,
Holland

● *In November I said it was unlikely that Interface 1 could ever be used with a modem. Ben Erkens has proved me wrong. If you want a copy of the software, contact the author, H J Koevoets, Hr. Danielstraat 116, Rotterdam, The Netherlands.*



Alphacom 32: can it make it through the cold?

Spectrum in the cooler

I OWN a Spectrum Plus, Alphacom 32 printer, microdrive and Ferguson tape recorder which I use in an unheated room. Are they likely to be affected by cold weather?

Harold Bray,
Winshill,
Burton-on-Trent

● *As long as the room is not damp, the Spectrum will not be affected by the cold, although the quality of the printer output might suffer.*

One letter at a time

WHEN I program my Spectrum with a menu I number the options and use INKEY$, the advantage being that you do not have to use Enter.

The problem is that you cannot go higher than 9. Is there a way around this difficulty? I prefer to use the numbers rather than letters.

P G Kerrick,
Cardiff

● *This is a common problem to which there is no simple answer. If you want to read two numbers, such as 10, you must either make all the numbers two digits, for instance 09, or tell the computer when all the numbers have been entered, by pressing Enter.*

Most programmers either let you press the first letter of the menu option, or use the Hex sequence 0-9 and A-F.

Transfer of disc data

I HAVE an LMT SPD1 disc interface for my Spectrum Plus drive. How can I transfer data to disc as LMT doesn't make tape to disc utilities? My disc drive is a Toshiba DS/DD 80T without a PSU.

Ceawlin Thynn,
Warminster,
Wiltshire

● *The best idea would be to contact a supplier of disc drives and get one from them. You need a fairly simple power supply which gives +5V and +12V, but it must have a reasonably smooth output.*

Unpleasant paper price

I HAVE purchased a Timex 2040 printer to go with my Spectrum, but the paper is very costly — £10 for five rolls. However, at WH Smiths I have seen Alphacom 32 printer paper at £1 per roll. Are those papers compatible? If so, can I buy this paper elsewhere for less?

Chris Pepper,
Sutton Coldfield,
West Midlands

● *The Timex 2040 and the Alphacom 32 are similar in many respects. Although I haven't been able to try it out on a Timex I would be very surprised if it didn't work. I doubt you will find paper any cheaper.*

What's the buzz man?

I HAVE recently exchanged my Spectrum for a Spectrum Plus and have come across several differences. The strangest being my mains adaptor which is buzzing. Is that a fault?

David Bass,
Gloucester

● *The Spectrum mains adaptor contains a transformer and it is that which is buzzing. Provided it is not too loud it is unlikely to cause any problems, but if you are at all unsure get it checked by an electrician.*

Getting the accent right

CONNECTING a Brother M1009 to my QL was far from easy. The switches on the printer — 1.1 to 1.8 and 2.1 to 2.8 must be set as follows: 01111010 and 10100101, and use ser1e for SuperBasic.

The printer has two character sets. As I want to use the set with French and other accents I need set number two. Is it possible to do that? What about **Quill** and **Archive?**

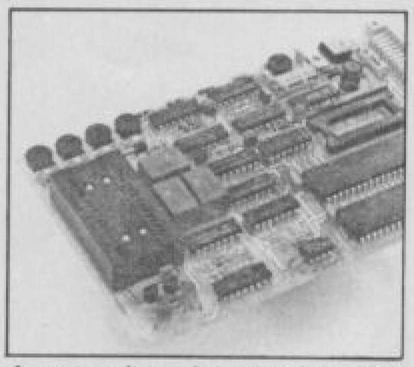
Ian Pizer, Geneva,
Switzerland

● *With* **Quill** *you can use Translate to trap a character and then send out a different code.*

On **Archive** *it is simpler. All you have to do is write a procedure which does it for you.*

QL EPROM development

ANGLO SERVICES has just produced the first EPROM programmer for the QL. It allows you to program a wide range of EPROMs from the 2K 2516 and 2716 up to the new 32K 27256 and, unlike many other programmers, does not require an external power supply.



The programmer is an uncased PCB which fits into the user port on the side of the QL. It has both a ZIF (Zero Insertion Force) socket for the EPROM to be read/programmed, plus a second socket for your own 4-8K EPROMs. That provides an alternative to the ROM port on the back of the QL and is configured to sit at the same memory address.

The software supplied with the programmer can easily be transferred to disc if required — provided you have some form of two way adaptor to plug the disc interface in at the same time — and consists of a series of Basic procedures called from a menu. The instructions, unfortunately, detail the procedures rather than explain the menu but between the two it is easy to work out what to do.

The main problem is that the procedures are in Basic and all operations take a long time. Reading all of a 16K EPROM into memory takes about five minutes, and programming a whole EPROM can take up to 25 minutes. Smaller EPROMs take correspondingly less time.

From the menu you can select which EPROM you are working with — see table one — load it into memory, save and load this memory to any device, edit it — using a fairly simple editor — verify the EPROM in the ZIF socket against the memory or dump it to the screen or a printer.

Which part of the EPROM you want to work on can also be selected, from just one byte up to the whole chip.

The programmer is, generally, a useful addition for the serious user and at £87.50 plus £2.50 p&p reasonably priced. Combined with CST's excellent IEEE interface and the wealth of good, high level, languages available, the QL now looks more like the serious machine it was always intended to be, and an ideal tool for higher education.

Anglo Services Ltd, 4/6, London Road, Portsmouth PO2 0LH. Tel: 0705-671421.

Table 1.

EPROM	Vpp
2716	25
2516	25
2732	25
2732A	21
2764	21
27128	21
27128	12.5
27256	25

Plus CMOS versions of the above.

Spectrum bits and binders

ON/OFF SWITCHES seem to be popular at the moment, two arrived from Tec, one for the Spectrum and one for the Spectrum Plus. Both clip onto the Spectrum via the power socket.

They add a professional touch to the Spectrum and are nicely styled to match it. Well worth the £4.95 each.



Tec also sent its latest product, a Data Binder. For £5.95 you get a two ring, A4 binder, four dividers and a card with Contents written on it.

Similar binders cost £1.99 in WH Smiths and dividers 50 pence, but then you will have to print your own pieces of card with Spectrum on them. Heaven forbid, shop in Smiths.

Tec, 24, Victoria Road, Bromsgrove, Worcester B61 0DW. Tel: 0527-74567.

Not another reset switch!

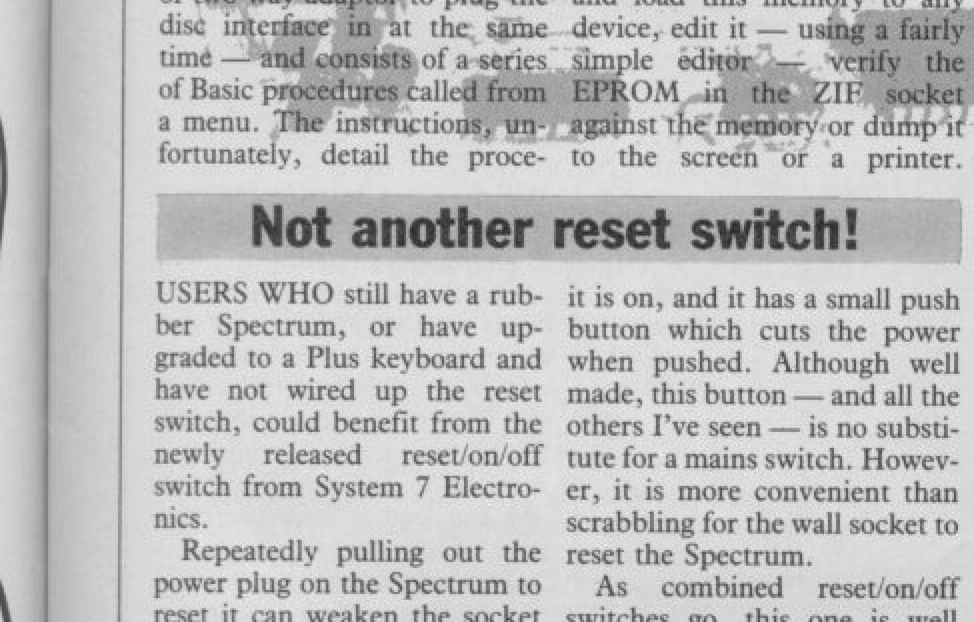
USERS WHO still have a rubber Spectrum, or have upgraded to a Plus keyboard and have not wired up the reset switch, could benefit from the newly released reset/on/off switch from System 7 Electronics.

Repeatedly pulling out the power plug on the Spectrum to reset it can weaken the socket — which in turn can lead to reliability problems — and so a switch is a great help.

The little black box fits between the power supply and the Spectrum. Next to the on/off switch is an LED to show when it is on, and it has a small push button which cuts the power when pushed. Although well made, this button — and all the others I've seen — is no substitute for a mains switch. However, it is more convenient than scrabbling for the wall socket to reset the Spectrum.

As combined reset/on/off switches go, this one is well priced at £5.00 inc p&p and could provide a useful stocking filler.

System 7 Electronics, 664, Anlaby High Road, Hull, North Humberside HU3 6UZ. Tel: 0482-508687.





Brighten up the screen . . .

THE SPECTRUM is well known for the quality of its display, from tolerable to downright diabolical. In order to get a steady picture you either have to be very lucky, or invest in a monitor.

For serious users, and those wanting to use **Tasword** without glasses, Lawtronics has released an RGB Monitor Interface which allows you to connect either a TTL level or linear — analogue — monitor to the Spectrum. Linear monitors can display different brightness levels while TTL has only the one setting.

The interface has a useful through port for other add-ons and a standard DIN socket for the monitor. That socket is configured so that monitors that work with a BBC can be plugged straight in.

At £45 the interface is a little expensive but the through port and the ease with which suitable cables can be found to fit it make it well worth considering.

Lawtronics Ltd, 139, High Street, Edenbridge, Kent TN8 5AX. Tel: 0732-865191.

more hardware on page 48



Beat your own drum

IF YOU SAW the SpecDrum on BBC 2s *Micro Live* and were impressed, wait until you hear it through a decent amplifier. A musician friend of mine, to whom I took the SpecDrum for a professional opinion, is buying a Spectrum just so that he can run one.

The SpecDrum reproduces drum sounds through an external amplifier. Eight drums have been pre-recorded digitally and those are loaded into the computer from tape. They can then be played back, under the control of the Spectrum, up to four at a time and at any speed. You can use an editor to write a number of sequences — songs — or play the machine in real time. It can even be set to give out a sync pulse, so you can use it to build up a number of tracks or plug into a Midi interface.

Cheetah will be supporting the SpecDrum with extra software which will initially comprise extra drum sounds — the first is to be a set of Latin drums. The company then hopes to turn it into a device capable of emulating very sophisticated drum machines. Even in its basic form at £29.95 it produces results that sound the same as £200-300 machines, and it is much easier to use.

Each song — there can be 16 — is made of up to 255 steps — where each step is one of 64 different patterns — repeated up to 255 times. That is enough to write a very long song. The tempo is set overall as the number of beats per minute, but a pattern can also have its own tempo and so alter the speed as you go along.

The eight drum sounds built in to the SpecDrum are arranged over three channels. Channel one has a Kick Drum; Channel two has a Snare, Mid Tom and Low Tom; Channel three has a Cowbell, Hihat (Closed), Hihat (Open) and Claps. Only one drum per channel can be played but you can add one extra drum per beat to those three channels.

The tape has two extra drum sounds, Rim and Hi Tom which can be substituted for existing drums. Also on the tape are 11 demo songs, which provide a useful starting point for your own compositions.

If you have any money left after Christmas go and buy one and find out for yourself, you won't be disappointed.

Cheetah Marketing Ltd, 1 Willowbrook Science Park, Crickhowell Road, St Mellons, Cardiff. Tel: 0222-777337.

Sound value on the box

IN MARCH 1984, I first looked at the Tele-Sound from Compusound. That has now resurfaced as the Soundboost from Saga Systems.

Soundboost is a small PCB that fits inside the Spectrum case and puts the BEEP out via the TV.

It has changed little in the last two years, and although fiddly to fit, it has the advantage that once fitted you do not have to worry about it.

If you want to blast the neighbours at full volume the Soundboost has many advantages. However, as it does not disable the internal beeper you cannot zap in private.

One other feature it shares with its 1984 counterpart is the price, still at £9.95 inc.

Saga Systems Ltd, 2 Eve Road, Woking, Surrey GU21 4JT. Tel: 04862-22977.





No saving on tapes

IN JUNE, Binatone sent me its Data Recorder for review and I found it to be lacking in many respects. Recently another Data Recorder arrived at the office.

The Binatone has an upright playing mechanism, tape counter, monitor switch, and will auto-stop from Play. The instructions specifically show you how to plug in the leads from a Spectrum.

As before, it could load pre-recorded — commercial — programs easily but, also as before, it would not load a program that had been saved on itself. Even changing tape from a computer cassette to TDK failed to solve the problem. The only way to load a program was to take the tape that had been saved on the Binatone and play it on another deck.

If you are looking for a cassette deck to load games the Binatone is as good as any other, although a little pricey at £29.95 — but then you would have to buy another decent deck to play your own tapes.

Binatone Int Ltd, Binatone House, Beresford Avenue, Wembley, Middlesex HA0 1YX. Tel: 01-903 5211.

Perfect copy at a stroke

MIRAGE has just released version two of the Microdriver and it is now even better.

For the uninitiated, all you do is load a program in the normal way — turbo load, colour coded cards, lenslok et al — and then at any time just push the button on the Microdriver. A menu appears and from that you can load or save the contents of memory.

The enhancements in version two are that loading and saving have been speeded up, and you now have an option of not saving the screen.

Although I still consider the price of the Microdriver to be a little high at £39.95, there is nothing else currently available that does the job as well.

Mirage Microcomputers Ltd, 24 Bank Street, Braintree, Essex CM7 7UL. Tel: 0376-48321.



We thought it was about time we put you in the picture.

When we introduced our AMX Mouse to micro-users, the response was phenomenal.

And no wonder!

Hailed by the press as 'probably the best input device that has arrived recently', the AMX Mouse brings to Spectrum 48K users, the same sophisticated, positive control that has, until now, been the province of more expensive computers – like the Macintosh.

The fantastic AMX Mouse Package opens up an entirely new and exciting world to Spectrum users and comes complete with Mouse, interface, which also includes a Centronics printer interface, and all these fabulous programs.



AMX ART

This computer aided, drawing program has to be seen to be believed. Making full use of on-screen windows, icons, pull-down menus and pointers, you'll be astonished at the quality of the work you can produce, save and print using either ZX or Epson compatible printers. It's a program ideal for both hours of family fun or for serious professional applications.

AMX COLOUR PALETTE

The wonderful pictures you create with AMX ART can be brought vividly to life with rich vibrant colours – using AMX COLOUR PALETTE. And with 8 Foreground and 8 Background colours you won't be short of inspiration.

AMX CONTROL

Now you can create a 'Mouse environment' in your own programs, AMX Control adds 28 commands to normal Sinclair Basic and contains three programs.

1. The machine code program to extend the Basic interpreter, which gives you full use of windows, icons, pull down menus, pointers and also supports AMX printer interface.
2. An Icon designer, an individual program for creating and storing icons for use in your own programs. The number and variety of icons you can create is limited only by your needs and imagination.
3. A demonstration program containing on screen calculator and puzzle.

This fabulous AMX Mouse Package costs only £69.95, a price as remarkable as the package itself and it includes a fully illustrated operating manual.



FOR INSTANT ACCESS OR VISA ORDERS RING (0925) 602959/602690

The software is supplied on cassette and a tape-to-microdrive transfer facility is included. The AMX Mouse package is compatible with the Spectrum 48K and Spectrum +.

Ordering couldn't be easier.

This superb package is available from all good computer dealers or direct using the freepost order form below.

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SU 1/86

Would you be cut out for something a little more business like?

Sticking to the best

Zap in style. John Lambert juggles with joysticks

Joysticks are the most popular add-on for the Sinclair computers, not just for playing games but also for drawing, cursor control in word processing packages and for moving anything around the screen. The keyboard can be used for all of those things but it is so much easier with a joystick.

Choosing a joystick from the hundreds available is not an easy decision, but this guide will show you what to look for, and how to connect it to a Spectrum or QL.

Joysticks are generally all the same. They may be different shapes and sizes but they all contain a number of simple switches which get turned on or off as the stick is moved. That type of digital joystick was first used on a home computer by Atari and, therefore, is sometimes known as the Atari standard. All Sinclair machines use this type of joystick — via an interface.

The switch used can vary a great deal. The cheapest joysticks, such as Quickshot I, use a bubble which when compressed by the stick makes contact. Those can wear fairly quickly and cannot stand up to heavy use.

Next in price and strength are leaf spring switches, where the stick causes two pieces of metal to make contact. Finally, the most expensive joysticks use microswitches. Those will last a long time and can easily be replaced should they go wrong.

Generally, you should buy the most expensive joystick you can afford as that way it should last a long time. Try to get one with a metal shaft in the handle — plastic ones break — and, if possible, try it out in the shop. The feel of a joystick is very important, some are sloppy and others require a lot of movement before they register.

It is within the interface that the complications arise. All interfaces have at least one Atari standard socket where the joystick is plugged in, but those vary in how they tell the computer when the stick has been moved.

Which type of interface you buy will depend on what software you want to use with it. The most common method is known as Kempston — named after Kempston Microelectronics who invented it. What that does is to configure the interface as part of the Z80 I/O map so that it can be read — to find what position the joystick is in — using the instruction IN 31.

Another method is for the interface to emulate the cursor keys — five to eight plus zero as fire. For obvious reasons that is known as Cursor.

The third method is known as Sinclair and emulates the six to nine keys with zero as fire. That is based on Interface 2 from Sinclair. Why Sinclair wanted to bring out yet another method is anybody's guess!

The problem is that until you buy the software you have no way of knowing which of those three methods it will use. Many programs give you a choice but unfortunately not all. The way to get round that is to use a programmable interface.

Those allow you to let each stick direction and fire represent a key on the keyboard. All games have a keyboard option and you just set the interface to the keys it uses. That also gets round the problem of games that do not use any of the three normal methods — Psion is very bad in that respect.

Unfortunately, programmable interfaces tend to be the most expensive, and in some cases can be very difficult to set up. For playing arcade games a Kempston standard interface is the most useful, and the cheapest. Some interfaces combine more than one method in the same box, but the more facilities it has the more expensive it will be.

Some joysticks offer extra facilities and you should take care when buying those. Although it is popular to have two fire buttons on a joystick, in many cases they are joined electrically and perform the same function, so it does not matter which one you press. Some joysticks, however, have two, independent, fire buttons and some interfaces can take advantage of this. That type of joystick can also be used with interfaces which normally only expect one fire button, and so are particularly worth considering. Care should be taken, though, as pressing the used button on some interfaces, will cause the computer to crash.

Another common extra is auto-fire, giving an auto repeat on the fire button.

In order to make their interfaces more attractive some companies add extras which are not related to joysticks. The best known is probably the Nidd Valley Slomo which lets you slow down the computer so that — in theory — the games are easier to play. Two other products, the Opus Discovery 1 disc drive, and the Mikro-Gen Mikro-Plus include Kempston compatible interfaces.

As far as the QL is concerned life is much simpler. The two control sockets on the back are already wired to emulate either the cursor keys and space, or the function keys. All you need to plug in a joystick is an adaptor which fits the control socket at one end and a standard joystick at the other. Joysticks are available which plug straight into the QL — ones that have a QL style plug rather than the Atari standard. The problem with those is that when you upgrade to a different computer you will have to buy another joystick, as it is unlikely it will fit the new machine.

Buying a joystick and interface can be a harrowing experience. Don't be afraid to try out half a dozen in a shop — and don't buy from a shop which won't let you experiment. Ask your friends and, of course, read the reviews in *Sinclair User*.

Protocol 1
Company AGF
Telephone 0243-823337
Price £9.95

Kempston compatible interface which contains a through port.

Protocol 2
Company AGF
Telephone 0243-823337
Price £14.95
Kempston, cursor interface

Contains a through port.

Protocol 3
Company AGF
Telephone 0243-823337
Price £19.95
Programmable interface

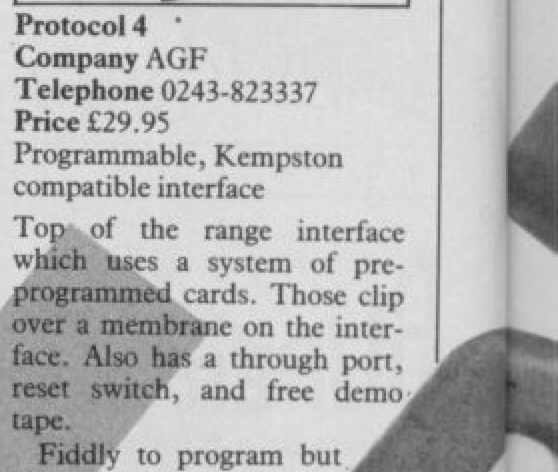
As Protocol 4 but not Kempston compatible.



Protocol 4
Company AGF
Telephone 0243-823337
Price £29.95
Programmable, Kempston compatible interface

Top of the range interface which uses a system of pre-programmed cards. Those clip over a membrane on the interface. Also has a through port, reset switch, and free demo tape.

Fiddly to program but one of the few which allows auto-fire. It also allows a second interface to be plugged into the back for a second player.



Quickshot I
Company AGF
Telephone 0243-823337
Price £7.95

Basic joystick which has been overshadowed by the II.

Quickshot II
Company AGF
Telephone 0243-823337
Price £9.95

Popular joystick, rather fragile and hence, tends to wear out quickly.

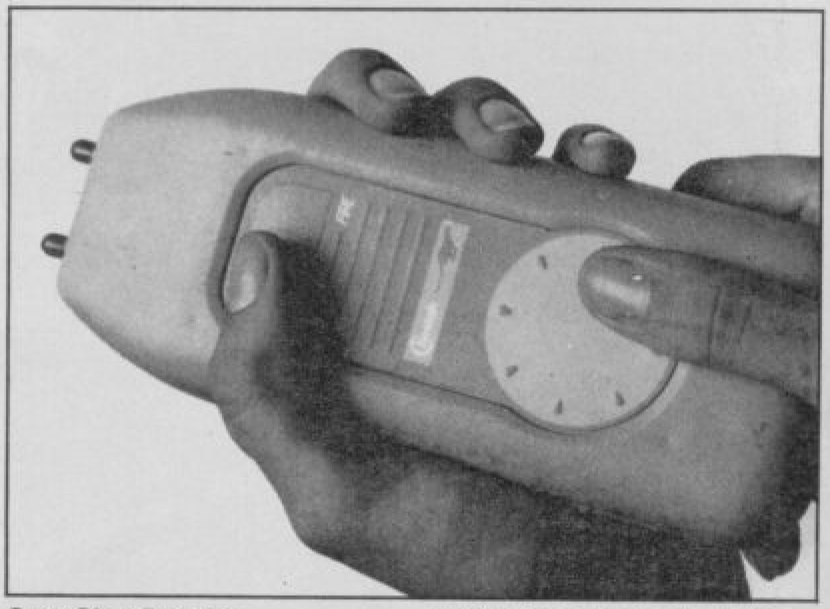
RAT
Company Cheetah
Telephone 0222-777337
Price £19.95

Infra-red remote control joystick and interface. The recently reduced price is good for a complete system and it is the only remote control joystick for the Spectrum.

The joystick is a pressure pad which takes a while to master. If possible try one out before buying.

QL Joystick Adaptor Lead
Company CLPS
Telephone 0325 313131
Price £4.95

Standard lead for plugging in an Atari standard joystick.



Sure Shot Joystick
Company Cookridge Computer Supplies
Telephone 0532-670625
Price £21.95 — QL, £15.95 — Atari

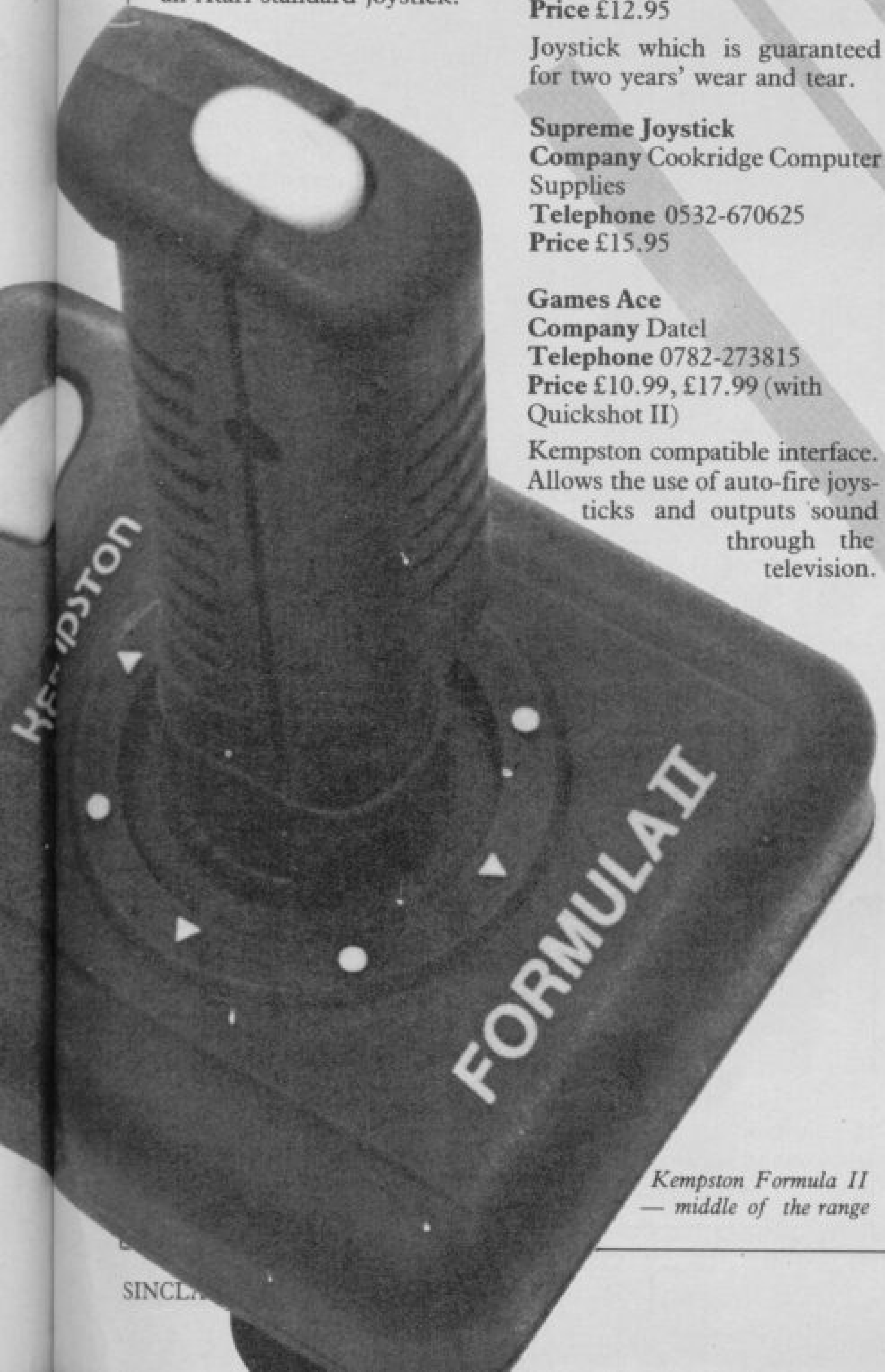
Zipstick
Company Cookridge Computer Supplies
Telephone 0532-670625
Price £12.95

Joystick which is guaranteed for two years' wear and tear.

Supreme Joystick
Company Cookridge Computer Supplies
Telephone 0532-670625
Price £15.95

Games Ace
Company Datel
Telephone 0782-273815
Price £10.99, £17.99 (with Quickshot II)

Kempston compatible interface. Allows the use of auto-fire joysticks and outputs sound through the television.



Kempston Formula II — middle of the range

Switchable Joystick Interface
Company Datel
Telephone 0782-273815
Price £12.95, £19.99 (with Quickshot II)

Kempston, cursor, Sinclair compatible interface. Switchable interface which covers all the main joystick standards. Can be used with auto-fire joysticks.

Turbo Ace
Company Datel
Telephone 0782-273815
Price £15.99, £22.99 (with Quickshot II)

Kempston, cursor, Sinclair compatible interface. Top of th^ range model which includes all the features of the Games Ace and the Switchable interface. Well priced for the wide range of facilities.

Dual Port
Company DK'tronics
Telephone 0493-602926
Price £13.00

Kempston and Sinclair compatible interface. Interface includes two sockets, one for Kempston and one for Sinclair.

Programmable
Company DK'tronics
Telephone 0493-602926
Price £22.95

Programmed by loading software from tape.

Quickshot II
Company Eidersoft
Telephone 0708-852647
Price £13.95

Standard Quickshot II with a QL plug on the lead.

Sureshot
Company Eidersoft
Telephone 0708-852647
Price £19.95

Sureshot with a QL plug.

Comcon
Company Frel
Telephone 0584-4894
Price £19.95

Programmable interface which, although it may not look too good, is easy to program using leads plugged into a matrix. Can run joysticks with two fire buttons.

Quickshot II+2
Company Frel
Telephone 0584-4894
Price £13.95

Standard Quickshot II but rewired to have two independent fire buttons.

Flightlink Hotshot
Company Frel
Telephone 0584-4894
Price £10.50

Small hand held joystick with a very good precise, action and two independent fire buttons.

Programmable
Company Fox
Telephone 0493-732420
Price £28.95

Programmable interface holding the details of which keys to use for 16 games in a battery backed RAM. Can also be used as a Psuedo ROM. Good operation and value for money.

Formula 1
Company Kempston
Telephone 0234-856633
Price £16.95

Large joystick with two — not independent — fire buttons. It uses micro switches and has a metal shaft so it should last a long time. Good value.



Formula 2
Company Kempston
Telephone 0234-856633
Price £11.95

Three fire buttons and plenty of movement for the careful enthusiast.

continued on page 56

Joysticks

continued from page 55

Joystick Interface
Company Kempston
Telephone 0234-856633
Price £9.95

Kempston interface made by the inventors of that standard.



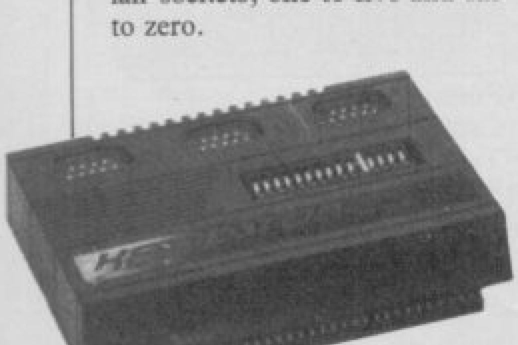
Tristate
Company Kempston
Telephone 0234-856633
Price £12.95

Kempston, cursor, Sinclair compatible interface. Two sockets cover all the main standards.



Kempston Pro
Company Kempston
Telephone 0234-856633
Price £16.95

Kempston, cursor, Sinclair compatible interface with three sockets and a slot for games ROMs. Covers all the main standards including two Sinclair sockets, one to five and six to zero.





Scoreboard
Company Kempston
Telephone 0234-856633
Price £19.95

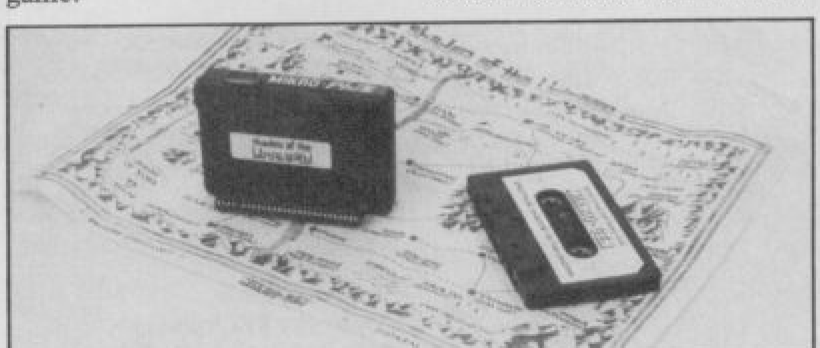
Joystick housed in an enormous consol which is bigger than the Spectrum. Fine if you want to pretend you are in an arcade but a bit over the top.

Joystick Adaptor
Company Miracle Systems
Telephone 0272-603871 ext 210
Price £4.99

QL adaptor lead.

Mikro-Plus
Company Mikro-Gen
Telephone 0344-427317
Price £14.95
Kempston compatible interface

Sold as part of the **Shadow of the Unicorn** game and has 16K of EPROM onboard which will be used in subsequent Mikro-Gen games. Expensive for just a Kempston compatible interface but good value — if you like the game.



Pacesetter
Company Nidd Valley
Telephone 0423-864488
Price £14.95

Kempston interface with through port and Slomo.

Programmable Pacesetter
Company Nidd Valley
Telephone 0423-864488
Price £29.95

Tape programmable with Slomo built in, and the ability to use two independent fire buttons. Good range of features.

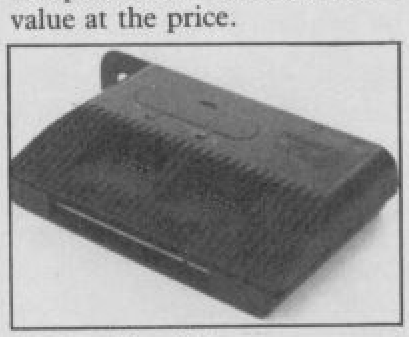
Spectrum KC
Company Nidd Valley
Telephone 0423-864488
Price £8.95, £9.95 (with through port)

Kempston compatible interface. Good price for a Kempston with a through port.



Flightlink
Company Nidd Valley
Telephone 0423-864488
Price £9.95

Hand held joystick with two independent fire buttons. Good value at the price.



Turbo: with added extras
Mikro-Plus: contains extra memory



Range of Nidd Valley interfaces

Turbo
Company RAM
Telephone 0252-850085
Price £18.50

Kempston, cursor, Sinclair compatible interface. All the main standards including two sockets for Sinclair, one to five and six to zero. Also included are ROM slot, full width through port and a reset button.



Spectrum Interface
Company RAM
Telephone 0252-850085
Price £9.95

Standard Kempston interface without through port.

We'll take you beyond the Spectrum.



Four great new add-ons from Ram, Number One in everything for the Spectrum...

TURBO INTERFACE – NEW LOW PRICE

Outperforms any other Spectrum interface. Supports Kempston, Protek, Interface 2 and ROM cartridge software, with a full expansion bus at the rear. The Turbo works with two standard joysticks, making the most of the Quickshot II's fast action. Features a unique power safety device and a new Reset button. Even more amazing value at just £18.50

QUICKSHOT II AUTO RAPID-FIRE JOYSTICK

The top games joystick with its sleek trigger fire button and an auto-fire switch for continuous shooting – a snip at only £9.95.

SPECTRUM INTERFACE

This Kempston-compatible interface adds real games power to your Spectrum. Costs just £9.95.

SPECTRUM UPGRADE KIT

Boost your 16K Spectrum to a full 48K, allowing you to run all the latest and greatest software. Only £21.95

Where can you get your hands on Ram's amazing Spectrum add-ons? You can see them at branches of Boots, Menzies, Greens, Spectrum Group computer centres, and good computer stores everywhere.

Ram Electronics (Fleet) Ltd (Dept SU), Unit 8, Redfields Industrial Park, Redfield Lane, Church Crookham, Aldershot, Hants GU13 0RE.
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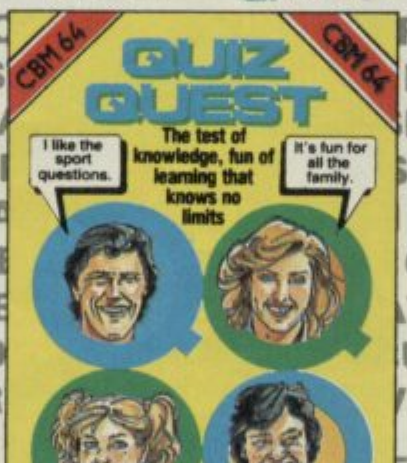

Back to Skool
oops!
Dragged back for another term, Eric continues his one-man fight against the Education system. All his old adversaries are there, plus escapees from the Biology room and, even worse, girls! Lucky he stocked up on stink bombs over the holidays!
Back to Skool (48K Spectrum) — £6.95
Skooldaze (48K Spectrum & CBM64) — £6.95
Available from all good computer shops or direct from:
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Microsphere Computer Services Ltd., 72, Rosebery Road, London N10 2LA.

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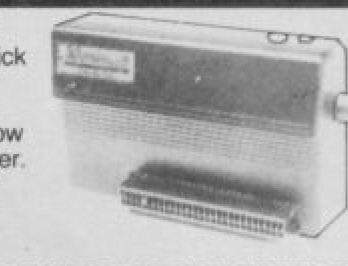
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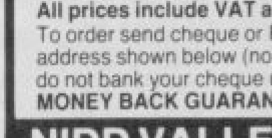
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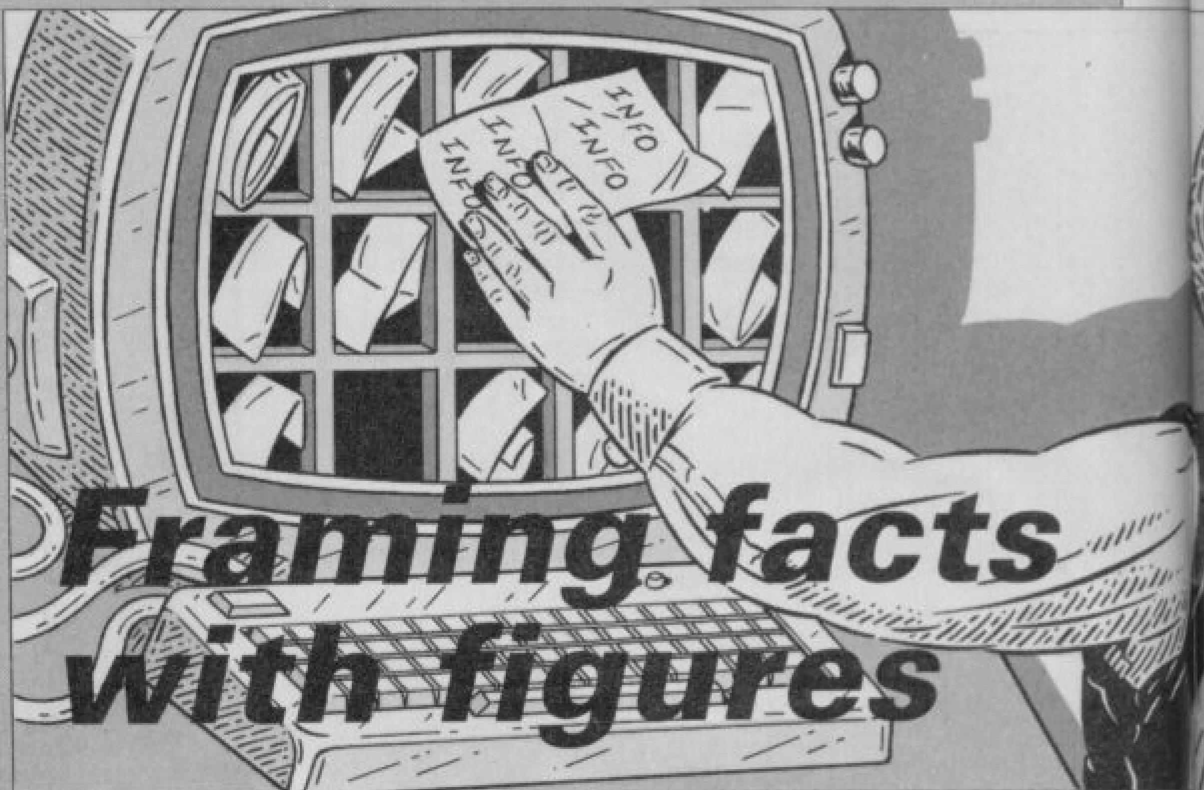
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Marcus Jeffery creates windows with rectangles, and shows where to store machine code



Framing facts with figures

IN THE penultimate article of this series, we're going to take a more detailed look at the CALL and RETurn statements, and also be looking at places to store machine code programs.

This month's routine allows you to clear rectangles to a particular colour, either for simple graphics or pseudo windowing.

CALL and RET statements have been included in past programs, but we haven't discussed how and where to use them. Those statements effectively create a subroutine program in much the same way as GOSUB and RETURN are used in Basic. All that is connected with the theories of program structure and top-down programming.

Suppose you want to develop a line drawing routine for the Spectrum using a top-down design, we would have the main program looking like:

```
main CALL crds
        ; Get start and end
        ; coordinates of the line
        CALL draw
        ; Draw the line on screen
        RET
        ; Return to the calling code.
        ; or Basic
```

The next step is to move down a level, and divide the two routines into further sub-divisions. If we were inputting the coordinates from the keyboard, then the 'get_coords' routine would look something like:

```
crds CALL get
        ; Get first x-coordinate
        CALL store
        ; Store first x-coordinate
        CALL get
        ; Get first y-coordinate
        CALL store
        ; Store first y-coordinate
        CALL get
        ; Get second x-coordinate
        CALL store
        ; Store second x-coordinate
        CALL get
        ; Get second y-coordinate
        CALL store
        ; Store second y-coordinate
        RET
```

Similarly, the 'get' routine will be divided:

```
get CALL print
        ; Print the input message
        CALL input
        ; Input the coordinate
        RET
```

and so on.

There are a number of advantages to this method of programming — you are less likely to make mistakes if you split the program into a number of menial tasks. However, you still have to take care of those registers which are corrupted, where the results will be stored, and so on. One failsafe method of handling the registers is to stack — PUSH — the registers which will be corrupted at the start of each routine, then POP them again at the end.

Another advantage is that it is easy to build a library of subroutines for general use, especially if you have documented them properly. If PUSHing takes too long, you could always try using the alternative registers, which we covered last month.

Figure 1. Assembly Code

```
                               ORG     60000
                               LOAD    60000
EA60  DD2A0B5C  WINDOW         LD      IX,(23563)    ; IX=Function arguments
EA64  DD5E04                   LD      E,(IX+4)      ; E=X-coord (top-left)
EA67  DD560C                   LD      D,(IX+12)     ; D=Y-coord (top-left)
EA6A  DD4E14                   LD      C,(IX+20)     ; C=Width of rectangle
EA6D  DD461C                   LD      B,(IX+28)     ; B=Height of rectangle
EA70  DD7E24                   LD      A,(IX+36)     ; A=New attribute value
EA73  F5                       PUSH    AF

EA74  7A                       LD      A,D           ; Calculate the value for
EA75  E618                     AND     18H           ;    HL=Display file
EA77  F640                     OR      40H           ;         location for
EA79  67                       LD      H,A           ;         top-left of
EA7A  7A                       LD      A,D           ;         rectangle
EA7B  E607                     AND     7
EA7D  1F                       RRA
EA7E  1F                       RRA
EA7F  1F                       RRA
EA80  1F                       RRA
EA81  83                       ADD     A,E
EA82  6F                       LD      L,A

EA83  C5                       PUSH    BC            ; Clear display rectangle . . .
EA84  E5                       PUSH    HL
EA85  C5        HT1            PUSH    BC            ; Loop down each character
EA86  E5                       PUSH    HL
EA87  0608                     LD      B,8
EA89  C5        LN1            PUSH    BC            ; Loop down pixel lines
EA8A  E5                       PUSH    HL
EA8B  AF                       XOR     A             ; A=0 for clearing display
EA8C  41                       LD      B,C
EA8D  77        WD1            LD      (HL),A        ; Loop along lines
EA8E  23                       INC     HL
EA8F  10FC                     DJNZ    WD1
EA91  E1                       POP     HL
```



When you come to develop the actual line-drawing part of the routine, you're going to need a subroutine which plots points. Easy, just pinch the plotting routine which was used in the shape-filling program — August issue. Having got a completed line-drawing routine, it can be placed in the library, and used again if you want to draw squares, or build an adventure graphics program.

Now that you know how the CALL and RET statements should be used, let's look at the tricks which can be performed with them. One obvious space-saving device which many programmers overlook is adding conditions to CALL and RET statements. It's all too easy to write something like:

```
        .
        .
      CP     byte
      JR     Z,locl
      CALL   routine
 locl        .
             .
      CP     (HL)
      JR     Z,loc2
             .
             .
 loc2 RET
```

when it would be far easier to write:

```
             .
             .
      CP     byte
      CALL   NZ,routine
 locl        .
             .
      CP     (HL)
      RET    Z
             .
             .
 loc2 RET
```

Hardened structuralists would have a fit if they saw that kind of programming, arguing that routines should have only single input and output locations to avoid mistakes and make the program more readable. That is reminiscent of the GOTO spaghetti programming arguments. Although those jumbled programs should be avoided, multiple input/output locations should be used. After all, when using machine code, you'll have to make a jump at some point.

There are quite a number of conditions which may be attached to CALL and RETurn statements, listed in figure five.

In previous articles, machine code routines have been stored from location 60000 upwards. That isn't necessarily the best place to hold machine code. All you have to do is choose a series of loctions, starting at 'loc' near the top of memory, sufficient to hold your machine code program and data. Then use the Basic CLEAR 'loc'–1 instruction to ensure that the area of memory is safe. You can still corrupt machine code in that area using POKEs, but Basic won't affect it, nor will the NEW instruction erase any of your code.

The major disadvantage with this method of lowering RAMTOP with the CLEAR instruction, is that the machine code is separate to any Basic program which uses it. You either have to include a loader in the Basic program, as we have in previous articles, or save the machine code separately using a SAVE "name" CODE location, length instruction. If you don't want to load it separately each time you use it, then it must be saved on tape after the Basic program, which should include the instructions:

CLEAR location–1
LOAD "name" CODE

to load the machine code into memory.

There are alternatives to that method of storing machine code programs. One of the most popular of those is to embed the code inside a Basic REMark statement. REM statements are typically of the form:

```
10 REM This is line ten of the
       Basic program.
20 REM REM statements allow
       programmers to
30 REM add comments to their
       programs, and
40 REM are ignored by the Basic
       interpreter
```

Any information which appears after a REM statement is ignored when the program is running. That information can be anything you like, including machine code. The only problems are putting the machine code after the

continued on page 64

```
EA92 24               INC   H
EA93 C1               POP   BC
EA94 10F3             DJNZ  LN1
EA96 E1               POP   HL
EA97 3E20             LD    A,32
EA99 85               ADD   A,L
EA9A 6F               LD    L,A
EA9B 3004             JR    NC,NOGAP  ; Check for screen thirds
EA9D 3E08             LD    A,8
EA9F 84               ADD   A,H
EAA0 67               LD    H,A
EAA1 C1      NOGAP    POP   BC
EAA2 10E1             DJNZ  HT1

EAA4 E1               POP   HL        ; Use HL=Display file
EAA5 7C               LD    A,H       ;   address to calculate
EAA6 0F               RRCA            ;   corresponding attribute
EAA7 0F               RRCA            ;   file address
EAA8 0F               RRCA
EAA9 E603             AND   3
EAAB F658             OR    58H
EAAD 67               LD    H,A
EAAE C1               POP   BC
EAAF F1               POP   AF        ; Restore A=Attribute
EAB0 112000           LD    DE,32
EAB3 C5      HT2      PUSH  BC        ; Loops to place new
EAB4 E5               PUSH  HL        ;   attribute value into
EAB5 41               LD    B,C       ;   screen rectangle
EAB6 77      WD2      LD    (HL),A
EAB7 23               INC   HL
EAB8 10FC             DJNZ  WD2
EABA E1               POP   HL
EABB 19               ADD   HL,DE
EABC C1               POP   BC
EABD 10F4             DJNZ  HT2

EABF C9               RET
                      END
```

Illustration: Stephen Wright

continued from page 63

REM statement to begin with, and knowing where the machine code routine starts so that you can call it from Basic.

Those are both solved by a handy couple of bytes in the system variables area. If you type

PRINT 256 * PEEK 23636 + PEEK 23635

you'll get a figure telling you where your Basic program starts. If we add five to that number, we'll get the location of the first character after a REM statement, assuming that the REM is the first statement of the program. We can check that with the program:

```
10 REM ABCDEFG
20 LET loc = 256 * PEEK 23636
   + PEEK 23635 + 5
30 FOR i = 0 TO 6
40 PRINT CHR$(PEEK (loc +
   i));
50 NEXT i
```

which should pick the characters out of the REM statement and print them.

We'll now store this month's routine in the same way. The assembly code, shown in figure one, is 96 bytes long. If you look carefully, you'll notice that nowhere in the code does it refer to any specific locations in other parts of the code. That means that we can easily place the code anywhere in memory without having to change any bytes, as would be the case with a CALL or JP instruction.

Figure 2. Basic loader/Application program

```
   1 REM 12345678901234567890123
45678901234567890123456789012345
67890123456789012345678901234567
890123456
   2 DEF FN w(x,y,w,h,i)=USR (25
6*PEEK 23636+PEEK 23635+5)
   3 GO SUB 1000
  10 CLS : FOR i=1 TO 703: PRINT
 "X";: NEXT i
  20 LET x=INT (19*RND): LET y=I
NT (19*RND)
  30 LET a=INT (7*RND)+1
  40 LET z=FN w(x,y,13,5,8*a)
  50 PRINT AT y+1,x+1; PAPER a;"
This is yet";AT y+2,x+3;"another
";AT y+3,x+3;"WINDOW!"
  60 PAUSE 50
  70 GO TO 20
  80:
  90:
1000 REM HEX LOAD ROUTINE
1010 DEF FN p(x)=CODE h$(x)-48-7
*(CODE h$(x)>=65)
1020 LET byte=0
1030 RESTORE 2000
1040 LET start=256*PEEK 23636+PE
EK 23635+5
1050 READ h$
1060 IF h$="*" THEN  GO TO 1160
1070 IF LEN h$<>2*INT (LEN h$/2)
 THEN  PRINT "Odd number of hex
digits in: ";h$: STOP
1080 FOR i=1 TO LEN h$
1090 IF NOT ((h$(i)>="0" AND h$(
i)<="9") OR (h$(i)>="A" AND h$(i
)<="F")) THEN  PRINT  "Illegal h
ex digit: ";h$(i): STOP
1100 NEXT i
1110 FOR i=1 TO LEN h$ STEP 2
1120 POKE start+byte,16*FN p(i)+
FN p(i+1)
1130 LET byte=byte+1
1140 NEXT i
1150 GO TO 1050
1160 PRINT "Code entered"
1170 PAUSE 150
1180 RETURN
2000 DATA "DD2A0B5C","DD5E04"
2010 DATA "DD560C","DD4E14"
2020 DATA "DD461C","DD7E24","F5"
2030 DATA "7A","E618","F640"
2040 DATA "67","7A","E607","1F"
2050 DATA "1F","1F","1F","83"
2060 DATA "6F","C5","E5","C5"
2070 DATA "E5","0608","C5","E5"
2080 DATA "AF","41","77","23"
2090 DATA "10FC","E1","24","C1"
2100 DATA "10F3","E1","3E20"
2110 DATA "85","6F","3004"
2120 DATA "3E08","84","67","C1"
2130 DATA "10E1","E1","7C","0F"
2140 DATA "0F","0F","E603"
2150 DATA "F658","67","C1","F1"
2160 DATA "112000","C5","E5"
2170 DATA "41","77","23","10FC"
2180 DATA "E1","19","C1","10F4"
2190 DATA "C9","*"
```

Figure 3.



This relocatable Z80 is more useful than location specific machine code. For instance, it allows you to build up libraries of routines and load them anywhere in memory, tying them together with CALLs from the main routine.

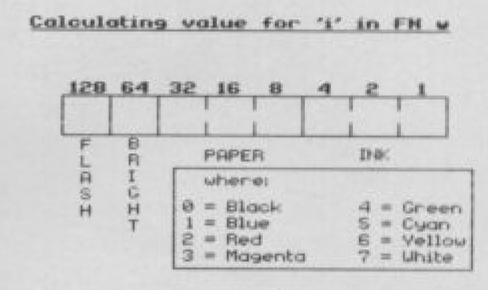
The Basic loader program, figure two, shows how that method can be used. The Hex Load Routine — lines 1000 onwards — is slightly different from normal. Instead of reading the start location, it assigns it the first location after the initial REM — line one — in line 1040. Be careful when typing line one, to ensure that there are at least 96 characters after the REM statement, not including the automatic space, otherwise you'll find the machine code overwriting your program.

When you run the program, it will initially cover the screen with X characters then overwrite those with pseudo windows. True windows will clear an area of the screen to a particular colour, then allow you to write specifically to that window without affecting anything outside the window. That program simply does the clearing and you must be careful where you print. You could just as easily use the routine to draw coloured rectangles very quickly, as when drawing a bar chart. If you want to see how fast the program really is, just take out line 60.

Having run the program once, try listing it. You may have a few problems. The initial REM will be followed by garbage, and possibly a system error. That is due to the machine code now embedded in the program. The advantage is that you can now delete lines 1000 onwards, and type 'RUN 10' to run the program as before — no need to reload the machine code routine. By typing 'LIST 2', you'll be able to list the program normally. You can also SAVE and LOAD the program with the routine still embedded.

When using the routine in your own

Figure 4.



programs, delete everything but lines one and two. To call the machine code use FN w, of the form: FN w(x,y,w,h,i) where x — the x-coordinate of the top-left of the rectangle. y — the y-coordinate of the top-left of the rectangle. w — width of rectangle. h — height of rectangle. i — the new ink and paper attribute — see figures three and four.

The 'FN w . . .' can be preceded by a number of commands, such as RANDOMISE, RESTORE, or just LET X=. You should ensure that the window fits onto the screen — 0 to 31 columns, and 0 to 23 lines, inclusive.

Although you may have set the INK and PAPER in a window to particular colours when specifying a value for 'i', you'll still have to set those colours when PRINTing. Otherwise, you'll merely alter the attributes in the PRINTed character squares. That is shown quite clearly in the included Basic program.

In the final article, next month, we'll take an in-depth look at how to use the Spectrum ROM.

Figure 5. Additional CALL and RET options

CALL	NZ,label	— Call if Zero flag not set.
CALL	Z,label	— Call if Zero flag set.
CALL	NC,label	— Call if Carry flag not set
CALL	C,label	— Call if Cary flag set.
CALL	PO,label	— Call if Parity odd.
CALL	PE,label	— Call if Parity even.
CALL	P,label	— Call if positive.
CALL	M,label	— Call if negative.
RET		— as for CALL


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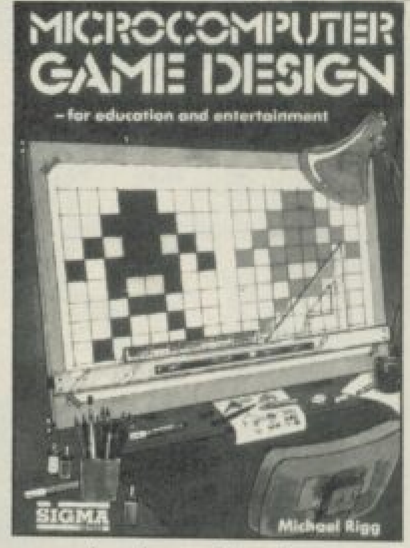


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Microcomputer Game Design



THE EDUCATIONAL value of games has been discussed in the computer press but little has been said of any practical value. *Microcomputer Game Design*, by Michael Rigg, develops the theme and shows that most of the effort of producing a game is in design.

Unlike many writers, Rigg does not treat any one language as inferior to another. They all have their good points and even Basic has some advantages.

The book deals with some unusual languages, such as Prolog and Comal, showing that they can have some importance in the area of games design.

Once through the process of design, coding and debugging — three processes which can often happen simultaneously — the author looks at the aspects of design such as graphics, colour and sound. He uses the **Melbourne Draw** program, available for the Spectrum, to create background displays, and then shows how best to cope with hundreds of Beep commands in an effort to produce interesting sound.

Following that, Rigg launches into the design of an adventure. Although the emphasis is on programming your own adventure — on any machine — the author does talk about utilities such as **The Quill** and how it is better to use them if you do not require any stunningly original effects. Rigg produces an entire game — called **Jason** — from plan to program and demonstrates that **The Quill** and other such utilities are more than tools for amateur programmers.

If arcade game designers are feeling left out they need not fear. The book includes a section on Ocean's **White Lightning** which creates background graphics and sprites using a language similar to Forth.

Machine code is, justifiably, the last aspect of game design to be dealt with by Rigg. There is nothing new in the section, but the author points the beginner in the right direction. Sparse details are given of number bases followed by basic information on such machines as the Spectrum and the Commodore 64.

The book shows that although playing games may be educational, writing games is more so. Rigg has a natural and lively sense of humour which pervades the explanations.

Rigg may not turn you into a programming genius but his book will show you where the first signpost is. *John Gilbert*

Publisher Sigma Press, 5 Alton Road, Wilmslow, Cheshire SK9 5DY
Price £6.95 (paperback)
★★★★

Screen Shot

COMPILATIONS are a good way of maximising profits for a publishing company. Titles can be re-released in bundles and packaged to attract a new audience.

Dorling Kindersley has now published compilations of its screen shot books. The *Screen Shot Starter Pack for the Spectrum Plus* is designed to help the beginner and comes with book one and two of the series, together with a typing tutor. The two books take the beginner through all the main commands together with simple routines which can be used elsewhere. There have been a great many books published for the beginner, but these books are among the best, due to the fact that each routine is illustrated in full colour with its appropriate screen shot.

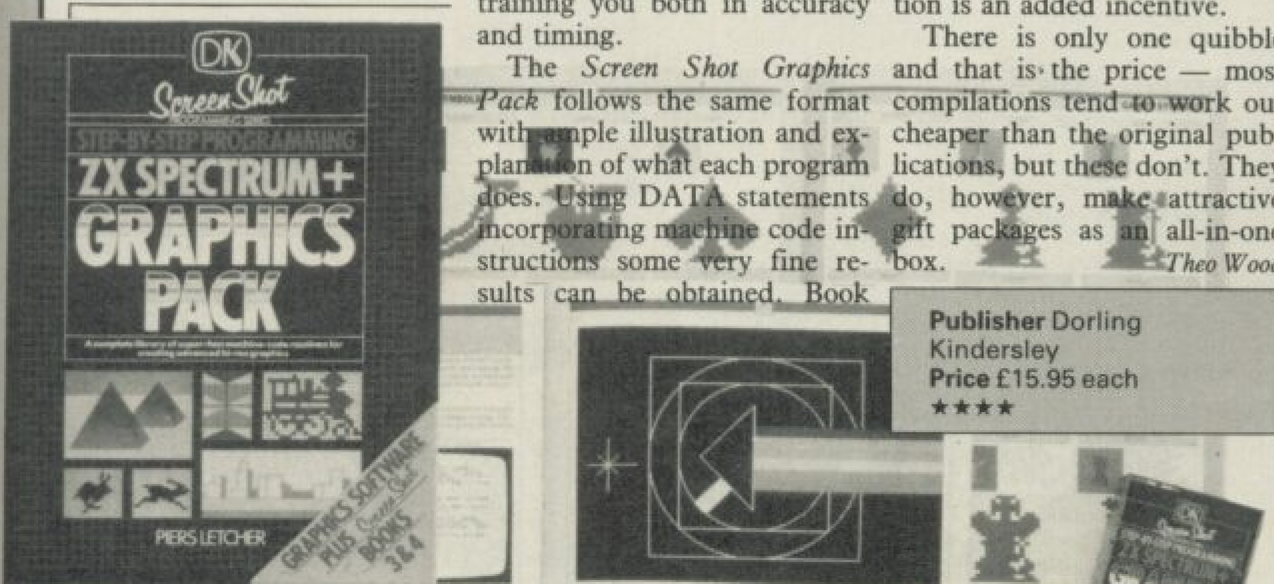
The typing tutor is pretty standard, beginning with the home keys on the keyboard and training you both in accuracy and timing.

The *Screen Shot Graphics Pack* follows the same format with ample illustration and explanation of what each program does. Using DATA statements incorporating machine code instructions some very fine results can be obtained. Book three covers lines, circles and filling shapes while book four moves on to sprites. There is a library of sprite shapes which can be used.

The accompanying tape demonstrates all the routines together with technical details. There is a simple graphics editor and a sprite editor.

I would recommend both packs either for the beginner or the more advanced programmer as the routines can be used easily in other programs. The quality of layout and illustration is an added incentive.

There is only one quibble and that is the price — most compilations tend to work out cheaper than the original publications, but these don't. They do, however, make attractive gift packages as an all-in-one box. *Theo Wood*



Publisher Dorling Kindersley
Price £15.95 each
★★★★

Sinclair Reference Diary

YOU CAN stuff anything into the front of a diary these days and Pitman has added another string to its 1986 bow.

The *Sinclair Reference Diary*, by Clive Gifford and Tim Hartnell, is just one of a range of computer diaries launched for those of you eager to find a way to fill your loved ones' stockings. Approximately three-quarters of the slim publication is filled with dates — a week to a page — and the rest devoted to computer facts relevant to the Sinclair owner.

The authors tell you everything you already know about your machine and the others which Sinclair has launched, including the ZX80. It gives information about peripherals, Spectrum RAM map and system variables.

The back of the diary contains a London tube map and the principal rail services. There's also a forward planner for 1987. I've made a note not to buy this diary next year. *John Gilbert*

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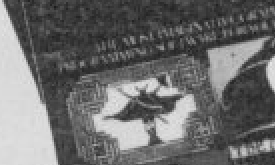
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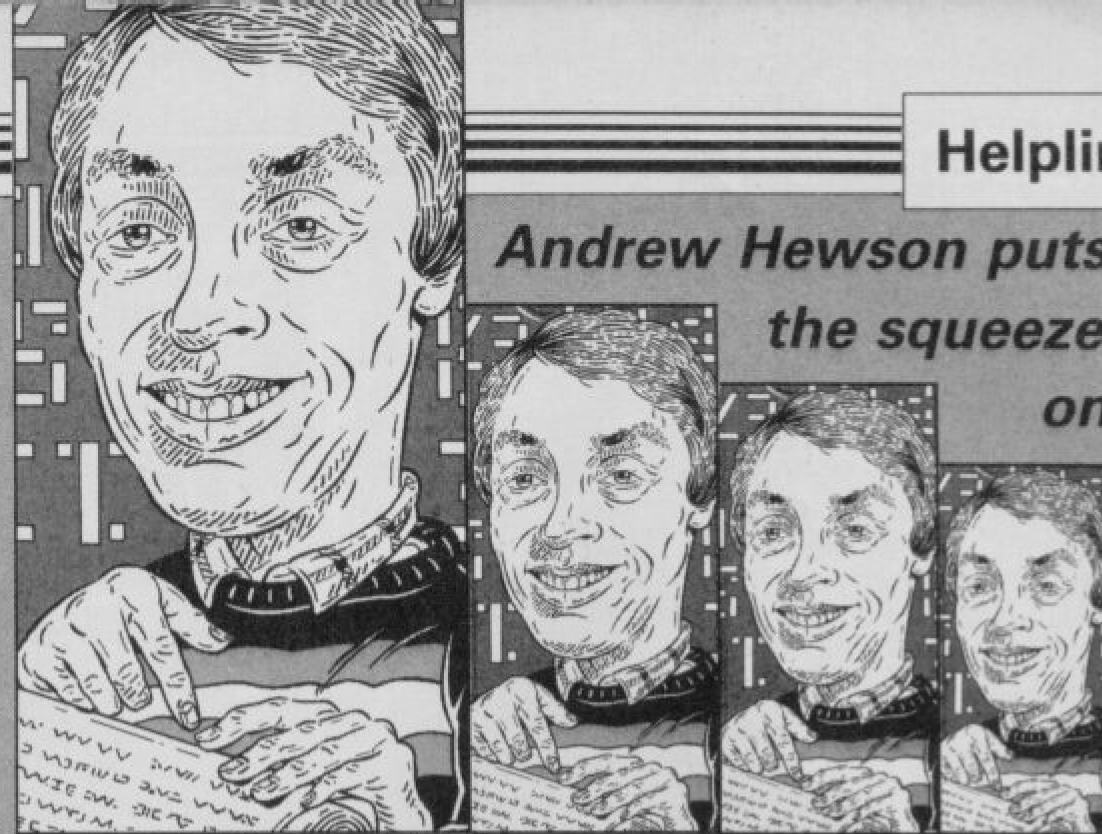
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Andrew Hewson puts the squeeze on

Incredible shrinking pics

THE TOPIC of this month's column is derived from a letter from David Keay of Nottingham: **I would like to know how to store screen pictures in the Spectrum memory so they can be printed quickly on screen to show location graphics.**

The Spectrum screen display is determined by the contents of two contiguous blocks of memory, the display file which occupies addresses 16384 through to 22527, and the attributes area which occupies addresses 22528 to 23295. The two blocks together use up 6912 bytes of RAM out of a total of 49152 available in the 48K machine.

The two blocks of memory have two quite distinct functions. The first, the display file, is by far the larger block and its contents control the high resolution detail of the picture on the display. Each of the eight bits in every byte in the display file controls a single pixel on the screen. If the bit is set to zero then the corresponding pixel is illuminated. If the bit is set to one the corresponding pixel is not illuminated. Each section of 32 bytes in the display file controls 32 ★ 8 = 256 pixels in a single horizontal line on the screen. 192 such lines of pixels make up the total display.

The display file controls a high resolution display but is, in effect, in two colours, because each pixel can be in only one of two states — either illuminated or not.

The second block of memory, the attributes area, controls the colour information to generate the familiar variegated Spectrum screen image. The attributes area is much smaller than the display file — 768 bytes compared with 6144. Each byte of the attributes area controls the colour setting of a single character square, equivalent to 8 ★ 8 = 64 pixels of the high resolution display. A line of 32 character squares spans the screen in the horizontal direction and there are 24 such lines down the screen.

```
10 CLEAR 58455
20 FOR I = 0 TO 6911
30 POKE 58456 + I, PEEK (16384 + I)
40 NEXT I
```

Table 1. A Spectrum program to move RAMTOP down and store the contents of the display file and the attributes area in the memory area above RAMTOP.

Within a given character square each illuminated pixel takes on the INK colour for that square. Each pixel which is not illuminated takes on the PAPER colour for that square. There is a choice of eight colours for both the INK and PAPER colours. In addition, the BRIGHTness for the square can be set at one of two levels and the square can be set to FLASH — exchange INK and PAPER colours every half second or so.

Thus the Spectrum screen display is a neat mixture of a two-colour, high resolution image superimposed on an eight-colour, low-resolution background.

The simple answer when storing pictures in memory is to move RAMTOP down using the CLEAR command, and then copy the contents of the display file and attributes area to the memory area, created above RAMTOP. Table one lists a Basic program which will do the job. Whenever the picture is required, a second Basic program, such as the one listed in table two can be used to copy the data back again.

The Basic programs are rather slow at copying such a large volume of data. The two machine code routines listed in table three do the same job in a fraction of the time. They may be loaded into the printer buffer using the simple decimal loader listed in table four. To store a picture enter the command RAND USR 23296. To recover a picture enter the command RAND USR 23314.

```
10 FOR I = 0 TO 6911
20 POKE 16384 + I, PEEK (58456 + I)
30 NEXT I
```

Table 2. A Spectrum program to retrieve a copy of the display file and attributes area stored above RAMTOP.

You will observe that the routines described store a single picture above RAMTOP. The method can be extended to store further pictures lowering RAMTOP by 6912 bytes on each occasion. Due to the limited amount of memory available, six pictures at most can be stored in that fashion with some jiggery pokery being necessary to store and recover the sixth one. That is clearly not very satisfactory, especially as no RAM is left for use by other software.

There are a number of ways of squeezing more pictures into memory. The simplest is not to attempt to use and store the entire display, but instead to use only a part of it. The mapping of the display file to the screen is not straightforward. The screen is divided into upper, middle and lower thirds. Within each third two adjacent lines of 256 pixels on the screen are controlled by two blocks of 32 bytes in memory, and those are separated by seven intervening blocks of 32 bytes. A way of observing that is to watch a screen display being loaded from tape using the LOAD SCREEN$ command.

Hence, an uncomplicated way of saving on memory space is to store and recover the top third of the display file and the first third of the attributes file. A machine code routine for doing that is listed in table five. To store the picture enter the command RAND USR 23296. To recover it enter RAND USR 23325.

That method of storing only a part of the display allows 18 pictures at most to be stored in RAM — still well short of a satisfactory number. Most commercial adventure programs have

continued on page 72

continued from page 71

special routines for drawing straight lines and arcs, either directly on the screen or in a separate work space, to create a picture from a compressed set of data. A separate routine is also required to colour in the picture in the regions between the lines. The programming involved can be quite sophisticated and cannot be covered in a column of this nature.

However, a technique which lacks the finesse of special drawing routines, but is easy to describe and interesting to use is to look for patterns in the data forming the picture, and to use those patterns to advantage. That technique is best described with reference to an example which apparently has little to do with storing and recovering Spectrum screen pictures.

Consider the problems faced by those who construct the weather forecasts on television, radio and in the newspapers. They routinely collect vast quantities of data. In particular, they collect rainfall totals every hour from many thousands of raingauges dotted around the British Isles. Each raingauge provides one measurement lying between zero and, say, 100 millimetres, to an accuracy of about 0.1 millimetres, every hour, 24 hours a day, 365 days a year — a total of 8760 measurements per year.

To store such data in a Spectrum, two bytes of memory would be required for each measurement in order to deal with the accuracy of one part in 1000. Thus, the data for one raingauge for one year would occupy 17520 bytes of memory — about three times as much space as the screen display. Comparing the data for more than two raingauges would be a tricky job, simply because of the number of bytes of data to be loaded, compared and stored.

However, most people would agree that even in the depths of winter, in the wettest part of the country, it doesn't rain all the time. In fact, it is quite usual for it not to rain for 48 hours at a time. In high summer, in the drier parts of the country, two or three weeks can pass without a drop of rain. Thus most of the data produced by an hourly raingauge consists of zeros, each representing an hour when it did not rain.

An astute computer programmer, when storing data of that nature, will recognise the pattern and devise a rule to allow the data to be compressed. The rule might be, "store all non-zero entries exactly as they are, but store a sequence of zero entries as zero, followed by a number indicating the number of zeros in the sequence".

Consider the following list of numbers:

. . . 9,11,34,4,3,5,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,1,7,8 . . .

When compressed using the rule above that list would appear as:

. . . 9,11,34,4,3,5,0,16,1,7,8 . . .

where the 0,16 indicates a sequence of 16 zeros.

Decimal	Assembly code	Comment
33 0 64	ld hl, 16384	Address of display file to hl
17 88 228	ld de, 58456	Address of destination to de
1 0 27	ld bc, 6912	Number of bytes to move to bc
237 176	ldir	Load hl to de, decrement bc and repeat
201	ret	Return
33 88 228	ld hl, 58456	Address of source to hl
17 0 64	ld de, 16384	Address of destination to de
1 0 27	ld bc, 6912	Number of bytes to move to bc
237 176	ldir	Load hl to de, decrement bc and repeat
201	ret	Return

Table 3. Two Spectrum machine code routines to store and recover the display file and attributes area above RAMTOP.

```
10 FOR I = 23296 TO 23552
20 INPUT J
30 PRINT I, J
40 POKE I, J
50 NEXT I
```

Table 4. A simple Spectrum program for POKEing decimal codes into the printer buffer.

That rule works extremely effectively for compressing hourly raingauge data because many hours pass by when no rain falls. It does not work so well for daily raingauge data, as sequences of several days together with no rain are less frequent than sequences of several hours with no rain. It works very poorly for monthly raingauge data because months without rain are very rare indeed. In effect, it is the resolution of the measurement interval which dictates whether the rule works. When the resolution is high the rule works well.

Returning to the Spectrum screen display we can see that the same effect is present. Because we are dealing with a high resolution display most of the pixels are zero — illuminated. That is particularly true when a cartoon style image is displayed, say of Mickey Mouse, which consists of an outline with the colour variation provided by the attribute area. We are forced to consider groups of eight pixels together — bytes — if we are to develop the compression scheme, but even at that resolution, many sequences of bytes will consist of zeros.

Thus the same compression rule can be used as for hourly raingauge data. When a sequence of zero bytes is detected, that can be stored as a zero byte followed by a number indicating the number of zero bytes in the sequence. It is not difficult to add such compression rules to the routines listed on tables three and five. Experiments indicate that reductions in memory requirement by a factor of two or three can be achieved.

Decimal	Assembly code	Comment
33 0 64	ld hl, 16384	Address of display file to hl
17 88 246	ld de, 63064	Address of destination to de
1 0 8	ld bc, 2048	Number of bytes to move to bc
237 176	ldir	Load hl to de, decrement bc and repeat
33 0 88	ld hl, 22528	Address of attributes file to hl
17 88 254	ld de, 65112	Address of destination to de
1 0 1	ld bc, 256	Number of bytes to move to bc
237 176	ldir	Load hl to de, decrement bc and repeat
201	ret	Return
33 88 246	ld hl, 63064	Address of source to hl
17 0 64	ld de, 16384	Address of destination to de
1 0 8	ld bc, 2048	Number of bytes to move to bc
237 176	ldir	Load hl to de, decrement bc and repeat
33 88 254	ld hl, 65112	Address of source to hl
17 0 88	ld de, 22528	Address of destination to de
1 0 1	ld bc, 256	Number of bytes to move to bc
237 176	ldir	Load hl to de, decrement bc and repeat
201	ret	Return

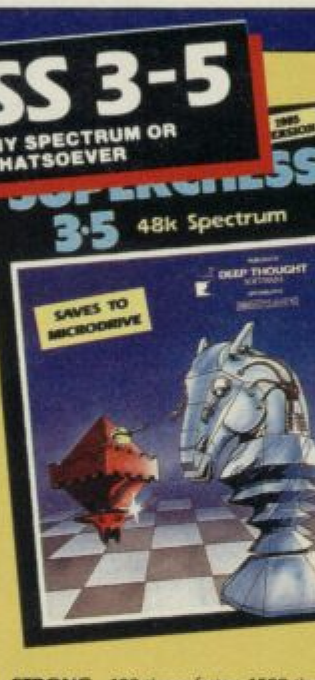
Table 5. Two Spectrum machine code routines to store and recover the first third of the display file and the first third of the attributes area above RAMTOP.

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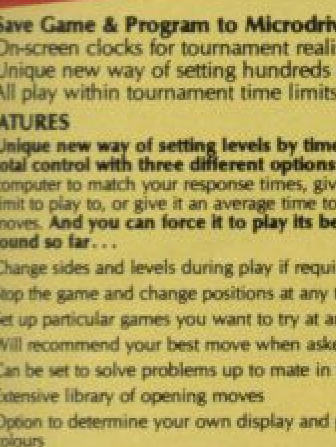
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Richard Price searches for a genuine hero . . .

In the pages of a dusty book



Judging by some of the mail I get, it seems that many adventurers think that game reviewers possess some form of magical amulet to help them solve any and every adventure without so much as a drop of perspiration. Not so. Like everyone else I've wasted hours, sometimes days, locked in cells, stuck in wells or straddled across some vertiginous chasm waiting for the stroke of genius that will get me home safe with the treasure, or the breathtakingly lovely princess. Verily the sweat has poured forth on those occasions.

There's quite a lot of help around if you investigate. Naturally, you will first write to the Fat One at the *Ogre*. His Vastness' drinking habits put him in touch with many rumours and tips. Companies are surprisingly helpful and many provide help sheets — but remember, they won't give complete solutions.

Level 9, Artic, Incentive, Adventure International and many others give help, though some may charge for booklets which list problems in more than one of their games.

Modem users can access the accumulated knowledge of many dedicated players on Prestel Clubspot 810. There are pages giving hints on specific games and a large section for those seeking help.

I've also been sent a mailshot from the Adventurers Club — 64c Menelik Road, London NW2 3RH. 01-794-1261. They offer help, newsletters, discounted games and a telephone helpline. The subscription fee is £10.95 for those living in the UK.

So, to business. Movie spin-offs are big business these days and it's often difficult for programmers to produce games of a film or TV series without causing pain to those punters who've already formed a clear view of the fantasy or storyline. Disappointed players of **The Tripods** game will know what I mean.



Neverending Story

Ocean has a justified reputation for doing well in the spin-off field. The latest offering is **The Neverending Story,** a text version of the fantasy film of the same name. The game comes in three sequential parts totalling more than 100K of code and data — a big, long game which should keep any player going for a long time.

The setting and background story is fairly standard for this type of fantasy. The many peoples of the realm of Fantasia are full of sadness and dread. They face total extinction from the encroachments of the All-consuming Nothing and, because their magical world needs the belief and imagination of others to keep it alive, they desperately seek a saviour to show renewed interest in them.

Back in reality, a young lad with a name calculated to give great joy to those who relish tasteless plays on words — Bastian Balthazar Bux — finds the book within which Fantasia exists. He reads *The Neverending Story* and raises the hopes of the depressed Fantasians. They appoint a small boy, Atreyu, as their hero and despatch him to find their saviour, the young Bux. You guide Atreyu through the landscape of Fantasia and will thus, hopefully, rescue the land from disaster.

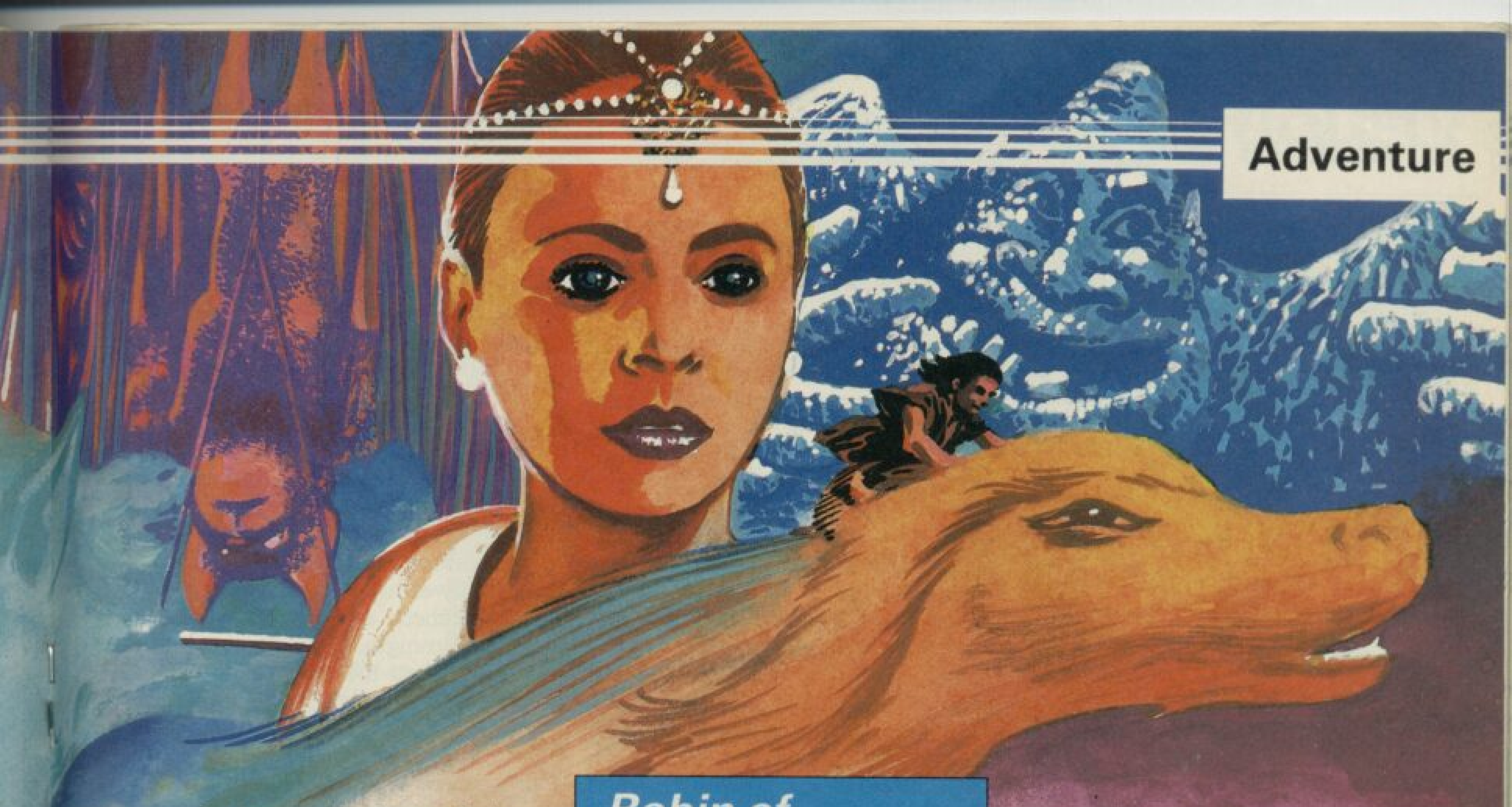
The game opens in the forest kingdom where the Empress of Fantasia dwells in her Ivory Tower. She too is suffering from the wasting away caused by Nothing.

Time is short and you must search the forest to find the precious medallion Auryn which holds the strength of Fantasia. That is quite easy and you should also find other items scattered about. There is a horn which can be used to summon Falkor the Luckdragon and a useful piece of information about the rough location of the saviour. That is obtained from Morla, the ancient and gigantic tortoise who lives in a disintegrating and swampy region beyond the trees.

There are a number of other characters in the game. Gmork the Werewolf is the most notable and the most dangerous, and, given a chance, he will trail and destroy you. If you dawdle, time will pass and danger will approach so it's wise to stay one step ahead of the evil one.

The game presentation is very attractive. The top third of the screen

Illustration: David Lloyd



contains a general background picture of the area you're in. Superimposed on it are graphics showing your possessions and sometimes a picture of a particular character or action. The graphics are fast and don't interfere with the game at all. They're also very slick and good-looking.

The text is displayed in a pseudo-uncial script. That gives a nice feel for the setting but can be occasionally difficult to read. The descriptions are long and evocative. Sometimes character actions occur at the same time as a location description and the whole location text scrolls up before you've had a chance to read it. Just retype 'look' to get it back.

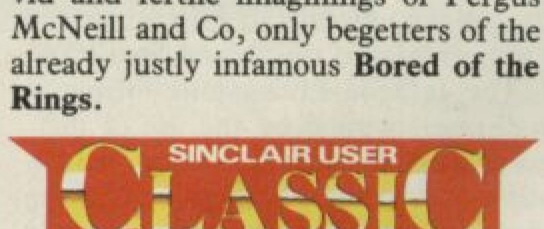
Input and response are fast and the messsages are usually useful. However, there is no examine function, which I found quite a disadvantage. All right, I know we're all meant to find out what objects are for, but examine is a fairly traditional way of getting extra information in adventures and I'm surprised to see it left out. On the other hand it does have the positive effect of making you work hard to solve the multitude of problems.

All told **Neverending Story** is a big, attractive adventure with plenty of polish and professionalism in its production. The story line is no big deal but that's not the game's fault. The program playability, colour and speed all make up for that and with three parts to play, it's also good value for money.

Robin of Sherlock

Well, here it is . . . the next delightfully demented offering from the fervid and fertile imaginings of Fergus McNeill and Co, only begetters of the already justly infamous **Bored of the Rings.**

SINCLAIR USER CLASSIC



First take Sherlock Holmes, dress him in Lincoln green and plonk him down in Sherwood forest with a cordless phone, a plastic bow and a long dark sword called Albino. Then take liberal helpings of stubble-chinned transvestite nuns, mafiosi Smurphs, Merry Men, the Three Bears in a hanging mood, the Wizard of Oz and assorted cabbies and villains . . . not forgetting Hurn the Hunter whose major interest is collecting sheds and stuff to go in them. Now throw in a lot of trees, a railway station and a few public conveniences, a Kentucky Fried Squirrel franchise and the odd mystical hill and Druids' Circle. Et voila! You now have a rough idea of the recipe for **Robin of Sherlock,** the latest Quilled adventure from Delta Four.

The game uses the full resources of Gilsoft's adventure system and features newer, faster, split-screen graphics for a large number of locations, sound effects . . . the damn phone keeps ringing, either with wrong numbers or Lestrade's mother hurling abuse . . . and the useful RAMsave and RAMload to store a position without using the tape recorder. Input and response are fast and friendly with a wealth of zany detail.

What's it all about? It's hard to find a place to start! Being a medieval freedom-fighting detective is a tough number. There are numerous crimes to solve . . . who killed dead Watson, who kidnapped Toto from the venomous brat Dorothy, why are the nuns running some heavy racket involving recycled Smurphs sold as garden gnomes, and who nicked the cabbies' hansom?

Then again what does the Godfather Smurph do behind his protective screen of minders, and why does Hurn rip off people's gear and store it in vast garden sheds scattered around Sherwood? Phew, and that's only a starter. Oh, and who put the laxative in the Three Bears' porridge? That's quite an easy one really because you arrive at their cottage to find them putting

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up a gallows to lynch Goldilox.

The characters can be interrogated and will all have some crummy alibi or excuse for their actions. The descriptions are funny — hilarious at times — and the examine command produces a vast amount of daft detail. As in Bored you can carry enormous quantities of objects, most of them utterly improbable but useful at some point. If you remember to collect the Kentucky Fried Squrrel barf-bag hat from the restaurant in part one you may find it very useful when trying to enter Nottingham Castle. But what can I do with the electric carving knife and can I use the 'mystic, ancient and out of order coffee machine set into a great sausage shaped obelisk' inside the stone circle?

The game is in three parts, each continuing the map of Sherwood and its surroundings. That means more than 200 locations to explore and vast swathes of text to enjoy. **Robin of Sherlock** seems much more detailed than Bored and really benefits from the recent improvements to the **Quill** system. There is always something to explore, plenty of crazed action — watch portly Friar Gorbachetnik explode after his 31st venisonburger — and the game is thoroughly playable and engaging.

I am utterly unashamed about awarding this game a Classic rating. It is knockabout, loopy farce of the best kind with a pace and zip about it that leaves 90 per cent of other games miles behind. Absolutely smashing!

Seas of Blood

Everyone who enjoys Steve Jackson's and Ian Livingstone's fighting fantasy adventure books will be glad to see **Seas of Blood** from Adventure International. The game, in Adventure International's regular style, is based on one of the duo's plots and casts you as a pirate captain. With your villainous crew and trusty ship Banshee you set sail from Tak, den of cut-throats and thieves, to plunder the Inland Sea.

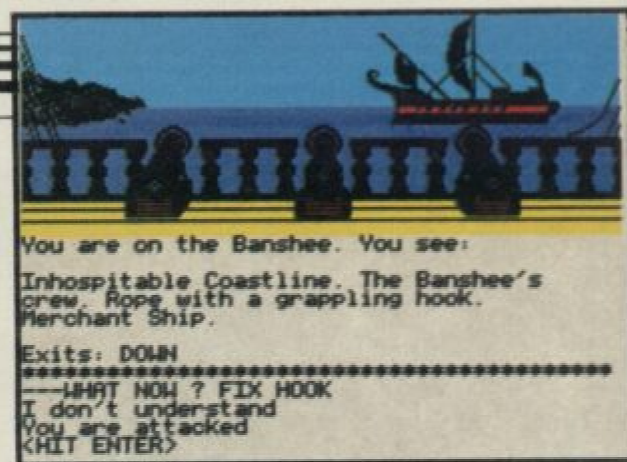
You can pilot your ship around those landlocked waters and attack the trading vessels that ply between ports like Assur, Lagash and Calah. When you reach a port you can go ashore and explore the mysterious lands outside the towns. There you'll find ancient dead cities, tombs and catacombs, oases and hapless caravans loaded with plunder and provisions all for the taking. Your final aim is to collect 20 treasures and take them to the top of the great mountain in Nippur at the southern end of the Inland Sea.

The Jackson-Livingstone format is well implemented by the use of text, graphics and combat routines which allow you to fight both ships and the men and monsters you will encounter on the land. The movement and messages are handled as in a normal text adventure with different instructions for land or sea journeys. When aboard you must always use 'Sail' followed by the direction — written in full. When ashore you can use the normal N,S,E,W abbreviations.

As in the books, combat is decided by simulated dice throws added to your stamina figure — which may well decrease if you are repeatedly wounded or hit. Your crew must be kept provisioned if they are not to mutiny so you have the added task of searching out victuals to keep them sweet. All that gives a variety of game tasks which help to keep the pace up. You cannot afford to be complacent or idle if you want to survive this violent world.

The graphics are well up to the company's usual standard, being fast and colourful. The interpreter is friendly and informative though the descriptions are not big — with detailed graphics for almost every location that doesn't seem to be a problem.

Remember that you can board some



of the vessels you attack — the stately Barge is quite important from that point of view — and generally you can only go ashore at ports. It is wise too to keep a weather eye on your status screen to check out your provisions and crew strength. You may have to hire crew when too many have been killed, though I never got that far.

The variables make for an action-packed adventure which keeps you on your toes and the programming quality is just as good as the company's other games. Recommended for swashbucklers and armchair Long John Silvers.

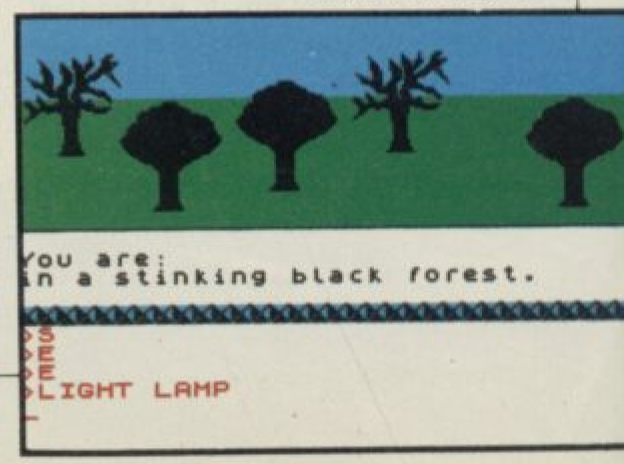
Quest for The Holy Grail

As far as I recall, **The Quest for the Holy Grail** isn't a new game and was originally by Dream Software. Whatever the case, Mastertronic has snapped up this mixed text and graphics game for their £1.99 range.

Python aficionados will remember the bizarre film of the same name with an Arthurian Britain populated by anarcho-syndicalist mud gathering peasants and cowardly knights, some of whom tended to say odd things like 'Nic' unless quickly dismembered.

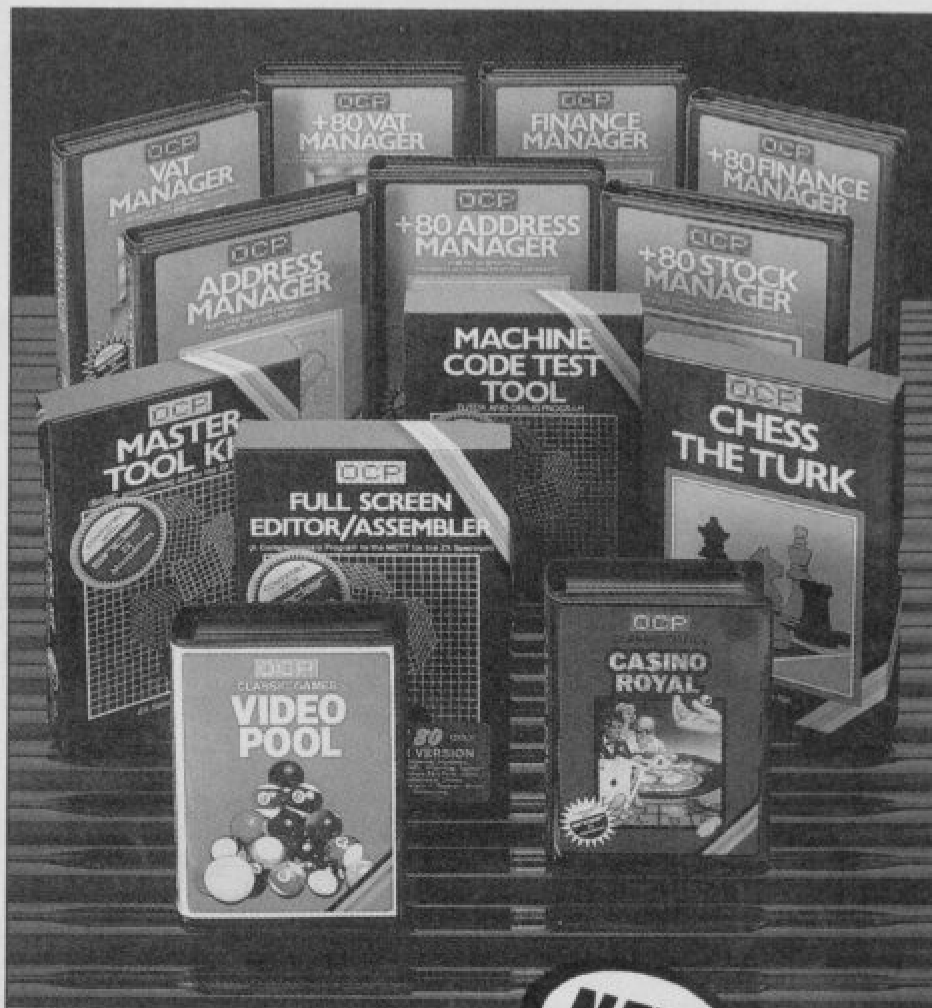
The computer program adopts the same whacky approach to the subject matter and you must wander the evil wasteland in search of the fabled cup, adopting the guise of Sir Tappin. Both Camelot and the surrounding countryside is populated by a variety of weird creatures — exploding white rabbits, three-headed knights, CND demonstrators, and holy hand-grenades. There are also the knights who say

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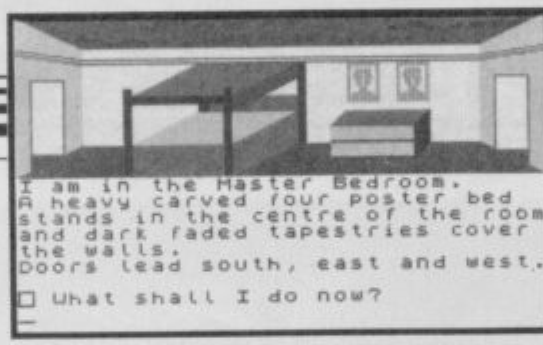
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odd things — beware particularly of the knight who says 'Sic' . . . he really means it. Somewhere within this medieval horror jumble — with liberal doses of anachronism — lies the cup that cheers.

The graphics are fairly slow as are the responses. 'Examine' is not always fruitful but in general the replies are humorous and sometimes downright cantankerous. On asking for an already described object to be examined I was first told, 'Why didn't you pay attention the first time?'. A second request was met with a simple 'No'.

Camelot is easily found but it's not so simple to get past the violently nauseous retainer who bars the way. Before you do that you will probably want to seek out the jester's Hat of Invisibility to escape the murderous intentions of Eugene, Wielder Of the Vic-20. Asking for help is also often fraught with difficulty as the interpreter will sometimes refuse, saying, 'Get lost, I'm sulking!'

The Quest for the Holy Grail, despite its rather dated programming, is still a humorous game with a cheeky interpreter and some silly messages mixed into the bizarre problems. You could do a lot worse at two or three times the price.

Merlock the Mede

Talking of doing worse we come to Terminal Software's **Merlock the Mede**. This double-sided production offers a graphic adventure on side one and a plain text game on side two. Merlock is meant to be some sort of time traveller but that has no real bearing on the games.

The graphics game is called **The Deeds of Glengarry Hall** and mainly consists of a search around a vast and empty mansion.

The plain text game is a straightforward search through another empty and fairly unresponsive landscape for Count Alucard the vampire. There are a few monsters to slay but, as the examine command keeps telling you, 'There is nothing of interest'. I'm afraid the only stunning thing about this game was its appalling grammar and almost total lack of punctuation. Viz . . . 'you are in the hallway of the rectory there was some steps up to the landing but they look to fallen down a long time ago.' Or . . . 'a peace of paper' and 'you can smell something fowl'. A rat I expect.

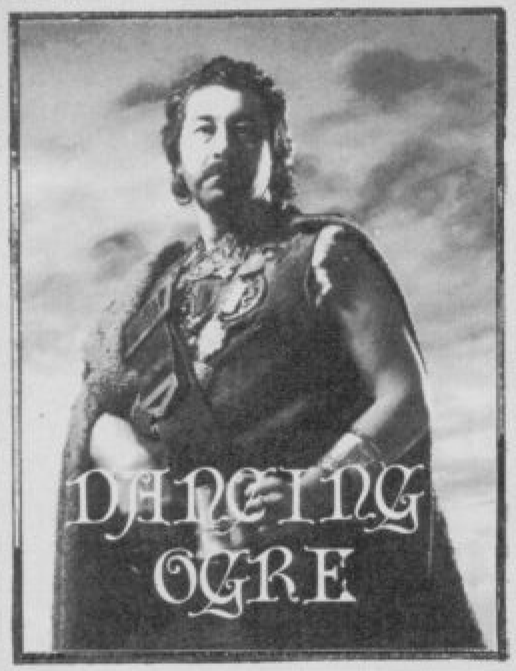
The Neverending Story
Publisher Ocean
Price £9.95 **Memory** 48K
★★★★

Robin of Sherlock
Publisher Silversoft
Price £7.95 **Memory** 48K
★★★★★

Seas of Blood
Publisher Adventure International
Price £9.95 **Memory** 48K
★★★★

The Quest for the Holy Grail
Publisher Mastertronic
Price £1.99 **Memory** 48K
★★★★

Merlock the Mede
Publisher Terminal Software
Price £5.95 **Memory** 48K
★



Gordo's strongbox has been rifled. He stops for solace and picks up a few tasty tips

Down we rode from the hills into the intense heat of the plain around Urtuun, a vast town and fortress garrisoned by the Twelfth Imperial Maruvian Legion. These troops are mainly cavalry and savage too — their nickname is the Ravaging Whirlwind.

Here I hoped for news on the fate of the Ogre, for the Axe Brothers who rode to save it with Moranna of Yel promised to send a pigeon when they had rearranged Uginnuk and his fellow trolls. Blessed be Ithukk! The Brother Steward at the Hall of the Axe told me he had a letter. "It is good news and bad, though, Gordo" says he.

When I read the paper I thought my heart would break. Why should I deserve such ill luck? Should any man suffer such a loss? True, the Ogre was safe and the trolls destroyed or fled. But — my hand trembles to write it — my strongbox was missing! Nothing could console my thoughts of a poverty-stricken old age or compensate for the loss of my six magic swords, two flying carpets, the five ruby eyes of Amildar the Blind God — at least, he was after I visited his shrine.

We put up with my friend Hurrik the Hammonite in his tavern, The Crazed Camelherder. I quickly retired to the tap-room to drown my sorrows in talk and ale. Fennel the Ferretter of Picton Vale, Melpas, Gwent had begun his journey through the time zones of **Mordon's Quest** *but had been pulled up short by a cannibal pygmy who refused to let him pass without savouring long pig. Revived by a hogshead of ale I told him that this minor obstruction could be disposed of by the creation of a suitable weapon from the items he should already have gathered. The anthropophage can then be blown away with a thorn in his flesh.*

"But what of the carnivorous plant then, Your Immensity?" rejoined the Ferretter. Well, the native's small body will provide a tasty though gruesome snack for the plant. An economical use of resources.

The usual large group bemoaned their failures when **Bored of the Rings** *but Ringbearer Lilley of 18 Rosebery Gardens, Belfast BT6 8JG boasted that he had completed the quest and offered help to those who write courier prepaid to him. Make sure you ask him about a particular problem.*

The others had not been so successful. Both Monledge the Wedge of Ikeston and Four Minute Miles of 2 Upton Way Broadstone, Dorset BH18 9LY could not escape the strange hordes who dwell in the Great Hall beyond the Maze of Morona. A careful search of the eastern areas at the end of the maze may produce the image of a brawny hero. If given to the denizens of the Hall it should ensure free passage.

Four Minute Miles was able to offer others help with **Avalon** *and* **Dragontorc** *— except for Camulod where he cannot enter.*

Fresh from some action in **The Hobbit**'s *Middle Earth Davyd Orcslayer and Guy Dragonsbane of Hopwood Lane, Halifax told me they had slain the dragon Smaug but had no clue where to go from there. At this Torca Moonsetter of 47 Elford Crescent, Colebrook, Plymouth PL7 4BT piped up with some aid. "When Smaug is slain, get the treasure and go south three times. Then go down and south twice again. Take care for a wrong step here means death."*

Torca gave me many maps — for which my greatest thanks — and will offer cluesheets for 50 silver pence. He knows many quests so you should write prepaid to him for further information.

The Mighty Isvarg of Orton Goldhay drew a circle of topers about him to tell them news of **Fairlight**. *He claimed to have completed the tasks and spoke thus: "To begin you should all take the scroll upon the ground. Kill the surrounding guards, take their helmets and drop them into the whirlwinds close by. Then go to the chequered room where the Reaper is and jump on the altar. Walk to the right and push away the panel to take a cross. Both this and the scroll should be put into a safe place. If you have the three plants they can be used to get the timers from the carnivorous plants.'*

More than this he knew but told us that this was enough to see you on your way through the first part of the quest. No amount of bribes would bring more forth.

Mad Mat, Abbot of Alkborough, had newly arrived from space and bore a message for those spacemen trapped in **Marsport**. *He told the company that the first key to M Central may be found in the Director's room on Alba level. To get there you should take the uptube in the D sector of Farr level. In return Mad Mat wished to know where he might find the anvil to destroy the crowns in* **Dragontorc**. *If he has the H seal and has found a flagstone at the Sanctuary he can use that to move the flagstone. After reading the message which appears he must drop everything except the seal and go through the door. The spiders therein can be killed with the touch of the seal. If he has SLOW,RETURN and MANTLE spells he can then use RETURN to enter Halgar's tomb room. There is a key with a message there.*

One spaceman, Guz Beerbelly — a solid name by all the gods! — from British Aerospace found problems closer to earth on **Espionage Island**. *What could he do with the truck at the mine? A rock needs moving there so, if he has his rope handy, he can tie it to the rock, then to the truck and thus remove the obstruction by driving it off.*

Wallace the Mighty, no wally he, had heard of Paul of Polesworth's way to raise cash in **Dun Darach** *and knows what to do with the money. "Get 10,000 Iridi and buy a thieves' licence from the thieves' guild in Silver Street. Using that the pearl can be stolen from the strongroom." Wallace will help those who write to him at 28 Lauderdale Avenue Downfield, Dundee, Scotland — remember to affix the postage for the return letter. In return let him know how Nilsen can be proved to be Stenberg in the* **Fourth Protocol**.

So to bed to make plans for the recovery of my treasure — perhaps Iubba the Thief may prove useful in this endeavour. Anyway, farewell til next moon, friends.

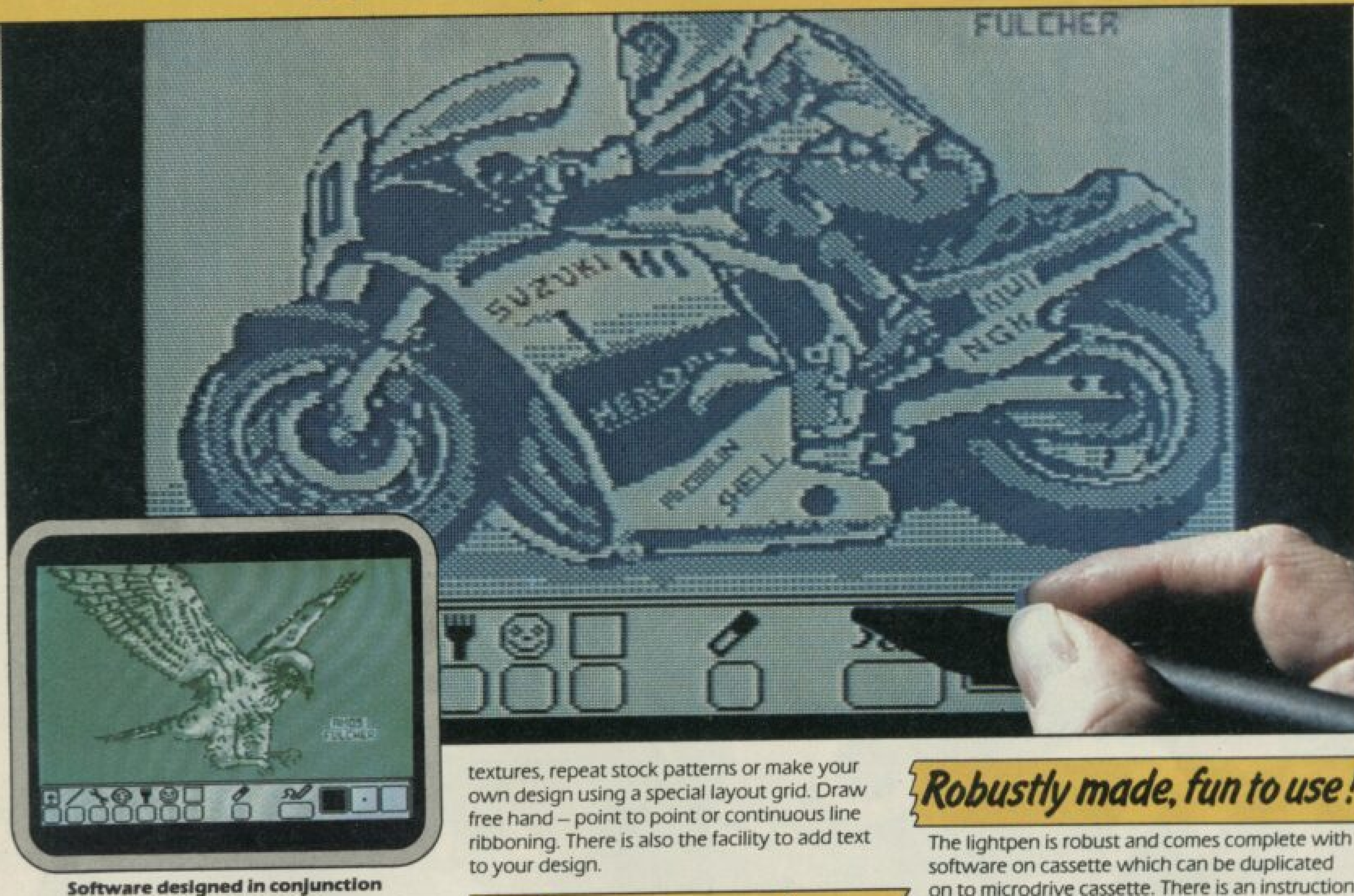
Greatbelly

Gordo Greatbelly, Landlord

If your have a tale to tell, or are in need of a helping hand, write to the Landlord of the Dancing Ogre c/o Sinclair User, Priory Court, 30-32 Farringdon Lane, London EC1R 3AU.


Robot
MESSIAH

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The lightpen is robust and comes complete with software on cassette which can be duplicated on to microdrive cassette. There is an instruction manual that's simple and easy to understand and an interface box for connection to your Spectrum computer. You can even write your own software for the Doodler if you wish.

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Address ________

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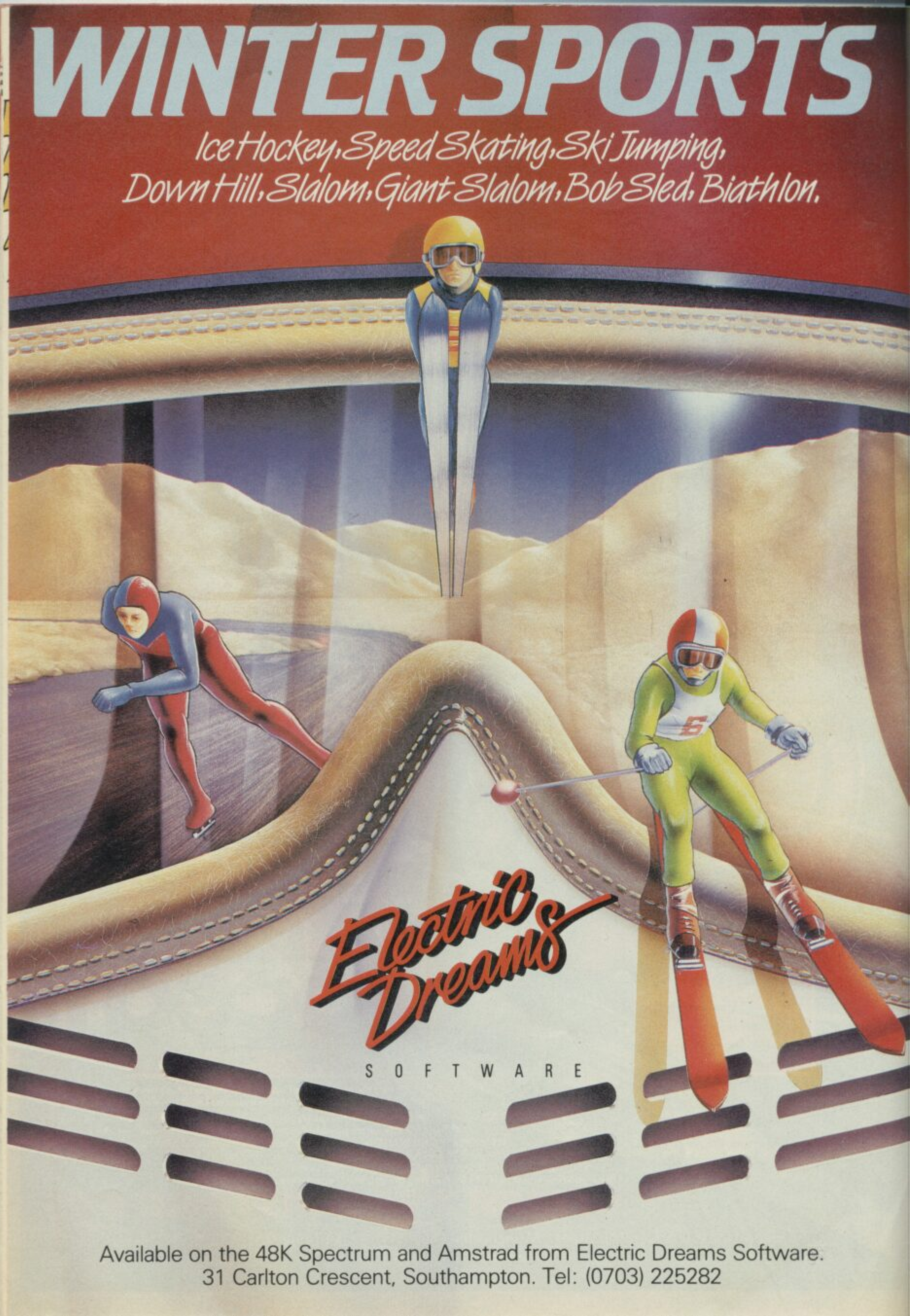
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Z80 and beyond

SINCLAIR'S SUCCESS had always been based on being first with products, often aimed at a market that didn't know it existed. By 1979 there was a well established 'personal computer' market. Commodore had launched its £700 PET home computer the previous year. Apple and Tandy were also well-known in the field. These machines were found variously in laboratories, and commercial and teaching establishments; not many people had a computer at home.

Sinclair decided that he would have to offer a product with all the essential features but at a greatly reduced price. In May 1979 *The Financial Times* predicted: "Personal computers will become steadily cheaper and their price could drop to around £100 within five years." Typically, Sinclair decided to do it in a few months.!



The ZX80 — the world's smallest and cheapest computer — was launched at an exhibition in Wembley at the end of January 1980. It measured 9″ × 7″ and cost £99.95, or £79 in kit form.

In order to keep the price low the designers had to introduce some radical ideas to reduce vastly the number of components. The biggest saving was the use of a domestic television set as a screen and a cassette player as a program and data store. The machine had a Z80A microprocessor which was supplied by Nippon Electric; a large ROM, which contained a 4K-byte specially written Basic interpreter, the character set and monitor; and the interfacing circuitry.

The ZX80 was very much aimed at the person in the street wanting to know something about programming computers. Sinclair was convinced that people could be persuaded to buy the ZX80 but *how* to persuade them was the problem. The image of the computer at that time was somewhat Big Brother; clinical, air-conditioned surroundings; huge cabinets with reels of magnetic tape whirring to and fro. How would people relate such a frightening piece of equipment to the ZX80? Why would they want to buy it for the home? Why would they want to buy it at all?

No one need have worried. The ZX80 was an immediate success; ten orders were placed at the exhibition in the first five minutes. The office in King's Parade was suddenly inundated with cheques; the switchboard was permanently jammed. Nobody had expected quite such a response and there was total chaos. Clive's immediate problem was to ensure that the company could cope efficiently both with the administration, and with the production of the ZX80.

Sinclair wanted to sell the ZX80 in the United States, although he did not expect to find an enormous market there because of the strength of the competition in the home computer field. However, a few weeks before the launch of the ZX80 in the UK he took it to the Las Vegas Consumer Electronics Show, and at the same time met Nigel Searle in Boston. Within a few days Searle had a new job, a new apartment and an office in Boston. He sold the ZX80 and later the ZX81 in the States from that office by mail order until early 1982.

Sinclair Research expanded rapidly; by September 1980, over 20,000 ZX80s had been sold. Clive Sinclair was determined to keep the company to a manageable size; he was all too aware of the need to try to learn from previous mistakes. Bringing manufacturing in-house in the days of Sinclair Radionics had seemed an excellent idea at the time, but the number of people they had had to make redundant had hurt him deeply.

By this time there were 12 employees at the King's Parade offices in Cambridge, six engineers still working at The Mill in St Ives, and Nigel Searle in Boston. To make sure that the company didn't grow too fast Sinclair had subcontracted all manufacturing. To begin with, production was done locally in St Ives by Tek Electronics. Components were generally of a much higher standard than they had been during the Black Watch fiasco, so there was less reason to manufacture products in-house. Eventually, as more and more were produced, the computers were made by Timex in Dundee; it is a testimony to all concerned that the return rate on the ZX80 was only one per cent.

Although the machine was so popular and sold so well, this was largely because it had no competitors. In fact it did have some drawbacks such as the lack of floating point arithmetic, a capacity of only five digits and an inability to handle separate files on its cassettes. The touch-sensitive — or sometimes touch-insensitive — keyboard was unpoular with users too.

But in spite of those shortcomings, the ZX80 had opened a new market sector which exceeded Sinclair's wild-



est dreams, so who was going to complain too loudly? In September 1980, the company launched a 16K RAM pack — an extra plug-in memory — to attach to the edge-connector at the back of the machine. There will be many who remember the well-known RAM pack problem whereby a slight breeze could upset the connection and an evening's work would be lost. Thank heavens for Blu-Tack.

The ZX81 was launched in March 1981. It contained a new chip, designed by Sinclair Research and manufactured by Ferranti — the world leader in uncommitted logic arrays — standard chips which can be adapted to a user's requirements at the last stage of production. The new chip replaced 18 chips in the ZX80 and the machine now retailed at £69.95 or £49.95 in kit form. Sinclair also offered an add-on ROM to convert the ZX80 to the ZX81.

The ZX81 had a floating decimal point and scientific functions. It came in a sturdy black case and, if you used a



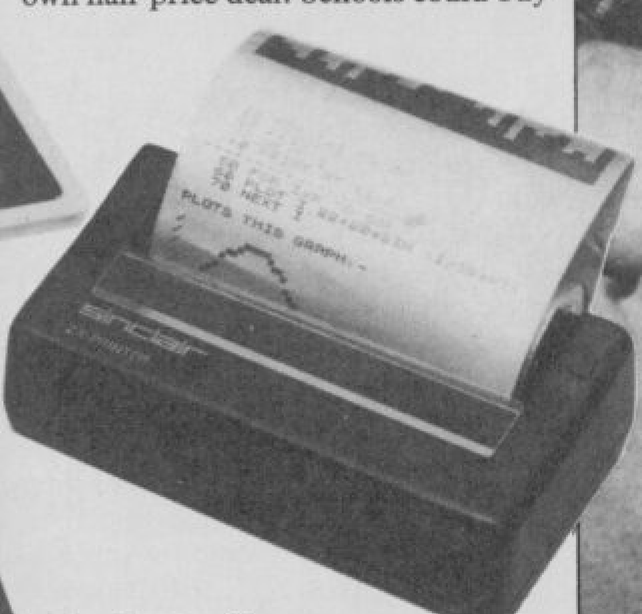
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Sir Clive's success. The second and final extract from Rodney Dale's Sinclair Story

colour TV, would produce black characters on a restful green background. It was a vast improvement on the ZX80. Sinclair also announced that he would be launching a small printer to work with the ZX81 later in the year.

Now that he had an improved machine and the promise of a printer, Sinclair decided to fight back at the government's scheme by offering his own half-price deal. Schools could buy





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a package of a ZX81 and a 16K RAM pack for £60; and he further promised that they would be able to buy the ZX Printer at half price when it was launched. That made the total cost of system £90, while under the government scheme the minimum a school could pay if it bought an 'approved system' was £130. About 2300 schools purchased the Sinclair package.

The ZX81 received a very sympathetic review from David Tebbitt in *Personal Computer World* in which he keeps referring to 'Uncle Clive'. On the other hand: "Sinclair has been a bit cheeky in his advertisements. Under a column entitled 'New, improved features', he proceeds to mentin three things that were included in the ZX80 when it was launched over a year ago!"

The ZX Printer was eventually launched in November 1981 at £49.95. Designed for the ZX81, it could also be used with the ZX80 with an 8K ROM. It was a very compact little printer using a special metallised paper, and would print 32 characters to a line and nine lines to the inch. You plugged it in to the edge connector at the back of the computer using a stackable socket. The print was clear and readable; the ZX Printer sold well.

The market gradually expanded. In March 1981 Mitsui approached Sinclair Research and towards the end of the year was granted exclusive distribution rights for the ZX81 in Japan. Mitsui was one of Japan's main importers of British goods, the range including Jaguar cars and Burberry raincoats. They planned to market the ZX81 by mail order at about £90 and

Sir Clive dons his running shorts





Nigel Searle in Boston

aimed at selling 20,000 computers during the first year; there were no competitors.

By the end of January 1982, 300,000 ZX81s had been sold worldwide. In the USA Sinclair was selling 15,000 personal computers a month by mail order; American Express was selling thousands to a potential ten million customers. Then Timex was granted a licence to market both current and future Sinclair personal computer products in the US from mid-1982. They paid Sinclair a five per cent royalty for sales and bought the right to use the Sinclair name in the US.

In Britain, Sinclair signed an agreement to sell the ZX81 through the branching-out stationers and booksellers WH Smith. Today, when so many national stores – Boots, Dixons, John Lewis, and the rest – have sections devoted to matters computery, it is hard to remember what a breakthrough it was to be able to buy the ZX81 in the High Street. Not that other makers were far behind; the numerous retail outlets were just one of the ways in which the home computer created jobs. By February 1982 production of ZX81s was running at about half a million machines a year and the company had a turnover of £30M compared to £4.65M in the year ended March 1981.

One of the interesting side-effects of the ZX80 and ZX81 was the number of cottage industries that sprang up because of them, producing software, peripherals and publications. A ZX80 Users' Club had been formed before the ZX81 was launched; *SYNC Magazine* appeared in January 1981 to cater for ZX81 users; *Learning Basic with your Sinclair ZX80* by Robin Norman, published by Newnes in early 1981, was one of the first books to develop Basic programming techniques on the home computer.

Hundreds of small operations started to sell programs, books, extra memory, printers, sound generators and add-on keyboards for use with the ZX81. In January 1982 one Mike Johnston organised a fair for companies selling products for the Sinclair computers. Nearly 10,000 people turned up at Central Hall, Westminster, which has a capacity for only a few hundred; the police had to be called to control the crowds; 70 exhibitors took huge sums of money.

Both the ZX80 and ZX81 had been produced as learning machines; for the person wanting to find out about computer programming. Once people knew what they were doing they wanted a more powerful machine, and at first they had to turn to manufacturers other than Sinclair Research to find them.

Sinclair's philosophy – at least in retrospect – was to prepare the world for universal computer ownership in easy stages. Over 50,000 ZX80s had been sold, and more than six times as many ZX81s. As the market matured, the engineers were working away at the ZX82 (codename) which was launched as the ZX Spectrum in April 1982. The hardware was designed by Richard Altwasser, who later formed his own company, Cantab, and fell by the wayside in an attempt to market a computer called the Jupiter Ace. The software was written by Steve Vickers on contract from Nine Tiles Ltd – the company which had originally provided Sinclair Basic.

Production of the Spectrum started at 20,000 a month and Sinclair expected to sell 300,000-400,000 during the first year. There were two versions: the 16K sold for £125 and the 48K for £175. For those who prefer-



The Timex plant in Dundee

red to work up in easy stages, an extra pack to increase the memory of the cheaper machine was available for £60.

In many ways the Spectrum was altogether a 'better' machine than either the ZX80 or ZX81, although some said its predecessor the ZX81 was superior when it came to finding out how computers actually work. Its chief advantages over the ZX81 were 'eight-colour graphics capability, sound generator, high-resolution graphics – smaller dots on the screen – and many other features, including

continued on page 90


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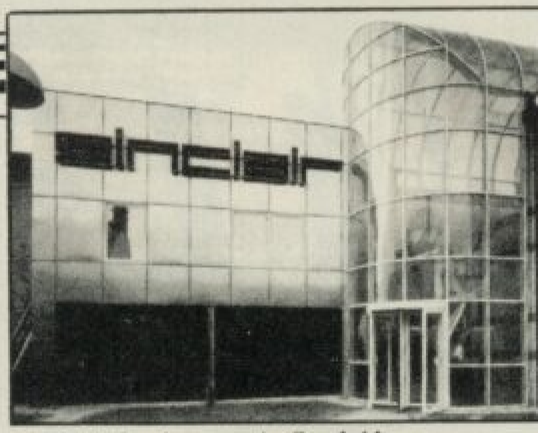
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the facility to support separate data files.'

At last, Sinclair Research was notionally able to compete with the BBC Micro and other personal computers; the figures in the table published in the ZX Spectrum leaflet were impressive. The ZX81 had been competing against the Acorn Atom; it could never have stood up against the BBC model A, the current Acorn competitor when the Spectrum came out. The Spectrum had a more versatile Sinclair Basic than the previous two machines; an improved keyboard replaced the unpopular – though cheap – touch-sensitive keyboard; it was able to generate and display graphics using up to eight colours; and it could be linked to other Spectrums to create a communications network.

However when Jim Lennox reviewed the new machine for the late lamented *Technology Week*, he was not impressed by the keyboard – which had been made to simulate moving keys by fitting a one-piece moulded rubber pad over a ZX81-type membrane keyboard, and which had a most peculiar feel to it.

The Spectrum was the cheapest home computer to produce colour graphics but the reviewer complained of the lack of facilities and 'found that the borders tend to wriggle in an irritating way'. It also had a small built-in loudspeaker which generated bleeps 'acceptable for games, but not much more'. And that, to Sinclair's disappointment, was about all the Spectrum was generally used for. The



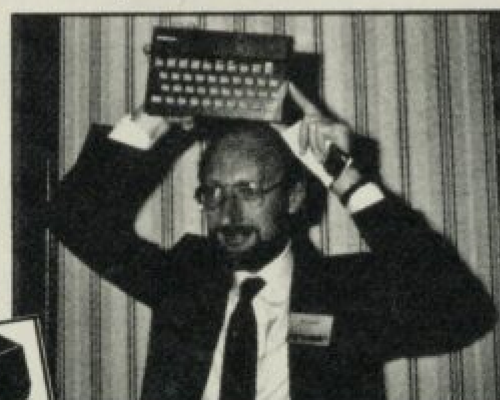
Sinclair's headquarters in Cambridge

tone of the review was set in the first paragraph:

> "After using it, however, I find Sinclair's claim that it is the most powerful computer under £500 unsustainable. Compared to more powerful machines, it is slow, its colour graphics are disappointing, its Basic limited and its keyboard confusing."

But never mind the reviewers; the Spectrum is without doubt the most commercially successful home computer ever. It was after the launch of the Spectrum that computer fever really took off; children were being introduced to computers at school and the very cheapness of the ZX80 and 81 meant that parents were prepared to buy them to give their children 'a good start in life'.

The place of the computer in the


The launch of the Spectrum

home was reinforced by the meagre provision in schools, where there was often only one machine between 30 pupils and thus insufficient opportunity for everyone to practise. What better solution than a computer at home?

But Sinclair observed another dimension: "The interesting thing is that as well as children being expert at programming, there is another expert group taking to it like ducks to water — retired people. The concept of it being peculiarly suitable to the young mind is perhaps wrong — it's the mind that's free of everyday burdens. The retired person with some time to spare can take to it wonderfully and it's giving a lot of people a new interest in life."

The first home computers had no software; to play a game on one you either had to make it up yourself or buy a magazine with a program in it — which was very good for the magazine industry — and type in the program before you could start to play. Now the Spectrum with its 48K memory was capable of playing very sophisticated games and there were companies starting up solely to produce them — often run by very young people who had learnt programming at school or from magazines.

In February 1983, WH Smith, who had been the Spectrum's biggest distributor, was joined by Boots, Currys, Greens — Debenham's in-store subsidiary — and John Menzies as Sinclair pioneered a change in the High Street. Many other stores such as John Lewis and the House of Fraser were supplied by Sinclair's UK distributor, Prism Micros. 200,000 Spectrums had now been sold by mail order, and by Easter 12-15,000 Spectrums were being sold per week in the UK. The Spectrum had also been launched in more than 30 countries worldwide.

You couldn't walk into WH Smith on a Saturday without being faced with shelves of software and mobiles and whizz-kids playing on the computers. What sort of computer you had became an important factor in playground status.

And where has it all led? Computer awareness has been generally raised; the dust has settled, much of it on the home computers, leaving a hard core of enthusiasts. The market is saturated; the craze is over. The computer is settling into a serious niche comparable with ham radio; the days of the CB computer are surely over.





Anger growing over delays in delivery

ANGER is growing among the many people still waiting for their Spectrums up to 10 weeks after placing their orders. Accusations have been made that the customer service department at Sinclair Research has been quoting 28 days' delivery for new orders, despite knowing they could not be met.

One person who contacted *Sinclair User* said that on the basis of the department's assurances he had ordered a Spectrum for his son's birthday. "He sold his ZX-81 expecting to have his Spectrum and then the order was returned when Sinclair said it could not meet the delivery date," he said.

Ronald Harris of Swansea said he had been waiting since the end of May. "I have the feeling I am just being strung along and that I haven't been told the truth. I wouldn't mind so much if I was told how long it would be but to keep telling me it will be another three weeks is not right.

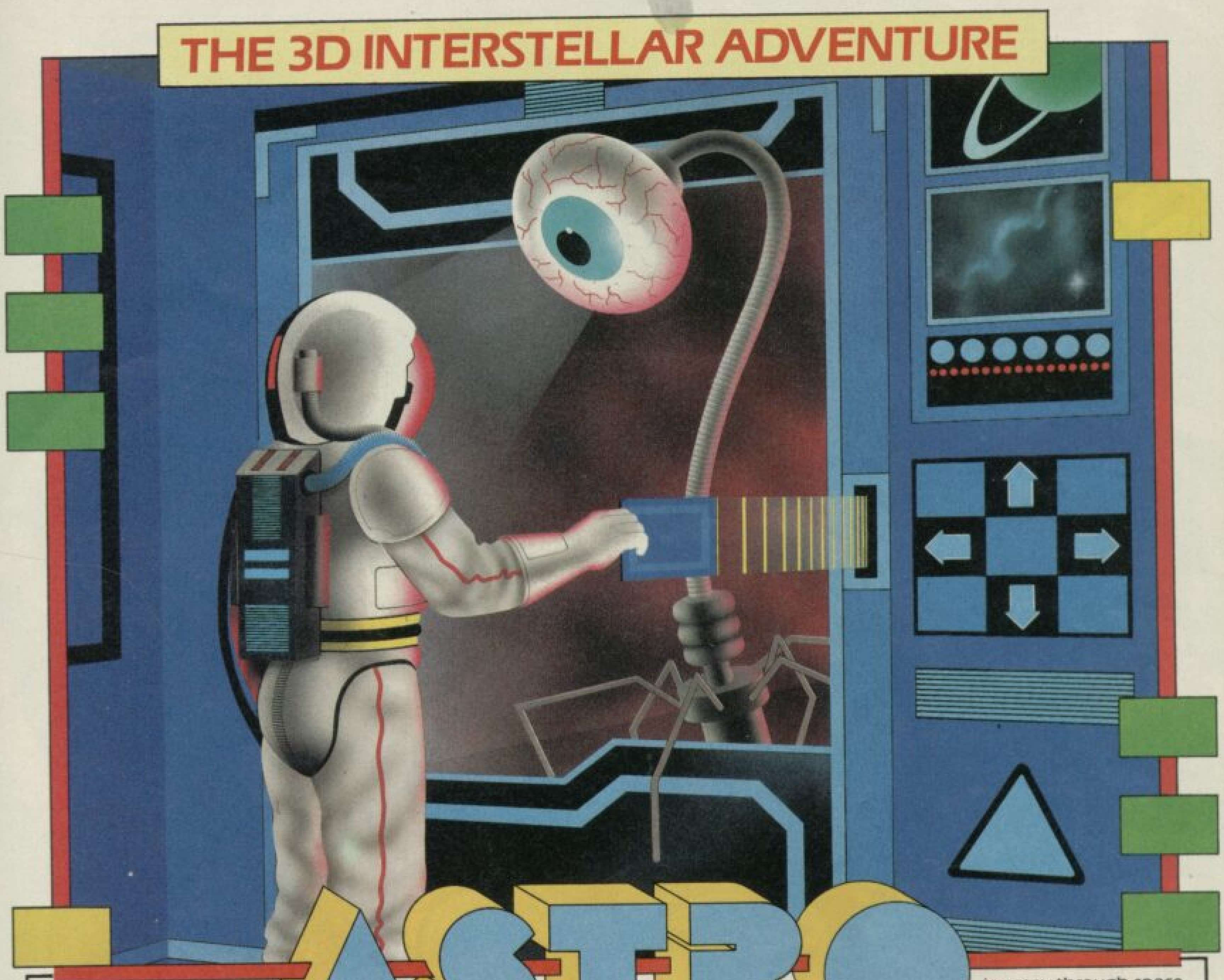
"What annoys me is that it will be about three months from order when I get my Spectrum but the order forms still say to allow 28 days for delivery."

A spokesman for Sinclair Research said that the company regrets the delays, which were now about eight weeks for new orders. He added that the problems had been caused by the level of response, which is much higher than expected.

The launch of the Spectrum had been based on the experience of the ZX-81 but order levels had been even higher.

Based on the latest information, which is changing from day to day, it is estimated that delivery time should be down to 28 days by the end of September. In the meantime, the spokesman said that the company will be notifying people regularly of the position.

He added that if customers telephone the distribution depot quoting their order, they should be able to receive some idea of when the order would be despatched but it would not be possible to give an exact date.

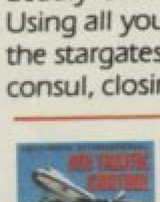


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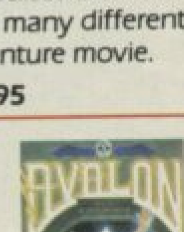
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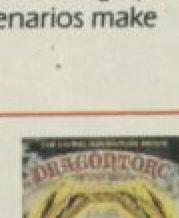
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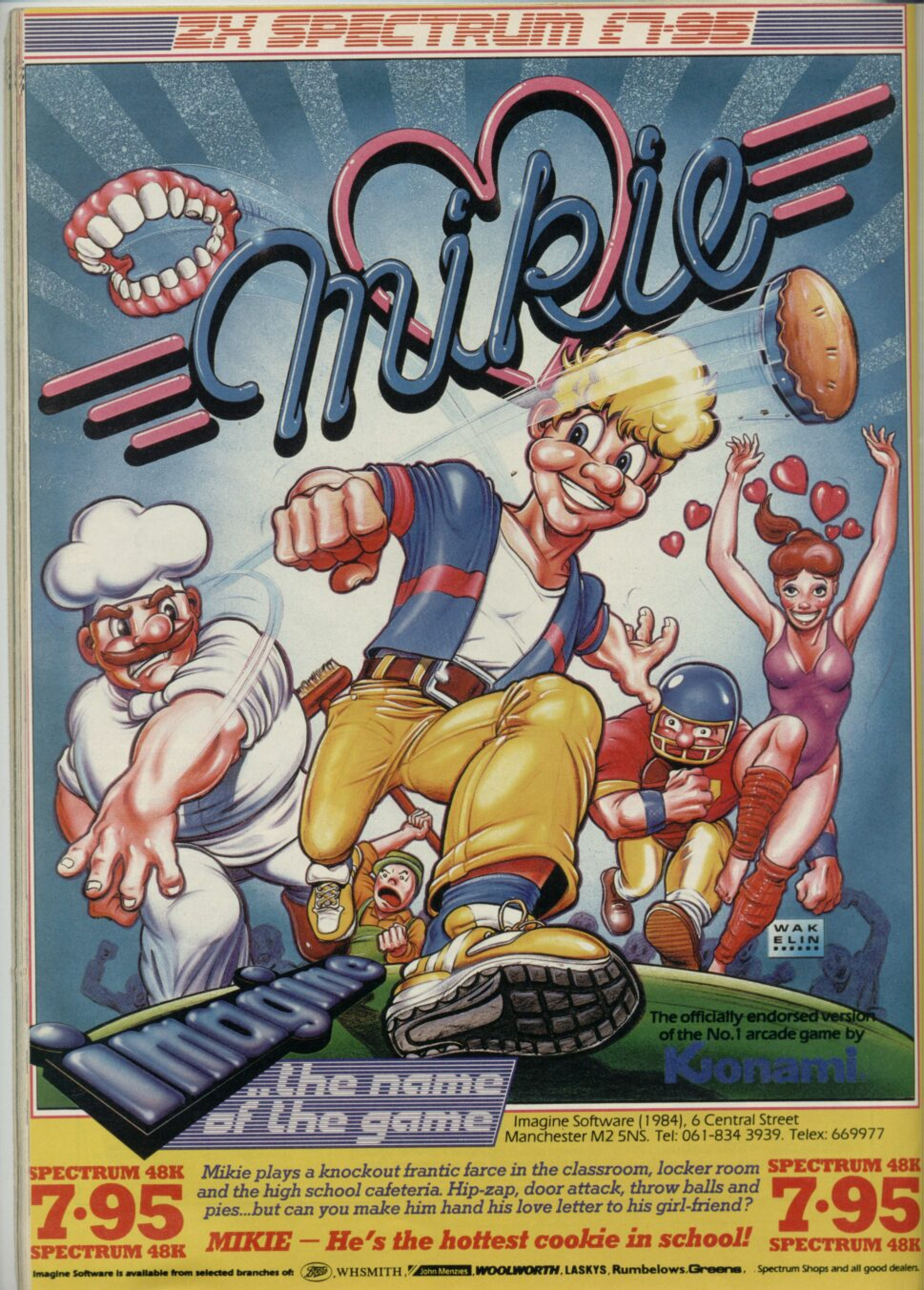


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PAYROLL

PAYROLL by Byte One £19.95p
This payroll program will handle up to 40 employees and will calculate NIC, PAYE, superannuation and many other deductions. This is a very user friendly program and extremely good value.

STOCK CONTROL

STOCK CONTROL. £10.95p
Handles 900 lines, including details of supplier. Program has full search facilities enabling you to search and update all lines from one supplier.

DATABASES

MASTERFILE by Campbell Systems £14.95p
This is one of the best database programs available for the ZX Spectrum. This program has many uses in a small business.

SUPERFILE. £14.95p
This is a new database program that stores pages of text 64 columns x 22 rows. The program includes word processing and full search facilities.

V-NOTCH. £12.95p
Index and Catalogue System, for collections of photographs, recipes, books, knitting patterns, stamps, etc. Up to 3500 items per file full search facilities.

SPREAD SHEET

OMNICALC by Microsphere £14.95p
This is the long-awaited micro-drive version of omnicalc complete with histograms and many other features.

BUSINESS GRAPHICS

HISTO-GRAPH. £10.95p
This program will enable you to present figures in histograms or pie charts. Displays 3 years as a direct comparison or 5 years to show a trend. A unique feature of this program is that all the figures can be printed with the histogram.

UTILITIES

DLAN by Campbell Systems £7.95p
Use your Spectrum to sell your products. Dlan will display messages in up to 11 different typefaces. Will scroll text in any direction.

TASWIDE by Tasman Software £5.50p
You can use this program within your other programs to display 64 columns on screen.

MF-PRINT by Campbell Systems £6.95p
Enables you to set a print format for your full-size printer within masterfile. Supplied complete with masterfile for **£19.95**.

TASMERGE by Tasman Software £10.95p
Allows you to transfer data from Masterfile into Tasword enabling you to use Tasword for mail merge. The program allows you to specify line and column of each field. For use on micro-drive only.

TRANSEXPRESS by Romantic Robot £9.95p
Micro-drive utility program which will enable you to back-up all your micro-drive cartridges.

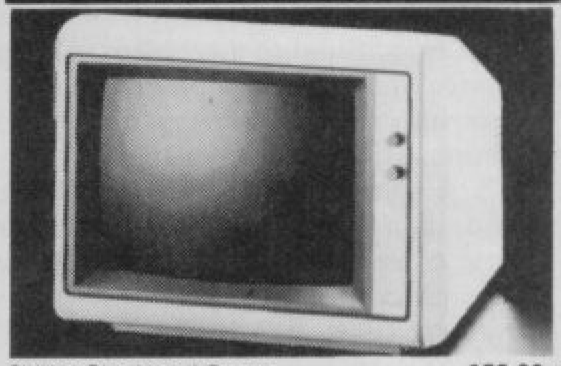
TASCOPY by Tasman Software £9.90p
This program allows you to produce 3 sizes of screen copy using Interface 1.

All software is supplied on cassette; if you require any of the business pack or invoicing programs supplied on disc please add £4.00p to the above price.

ACCESSORIES

Blank microdrive cartridges	£1.99p
Microdrive storage boxes	£5.95p
RS 232 lead	£11.50p
Monichrome monitor connector	£11.50p
RGB monitor connector	£45.00p
Centronics interface	£44.90p
3½" floppy discs	£4.81p
Continuous Paper 2000 sheets	£12.98p
Continuous labels 1000	£6.65p

MONITORS



Phillips Black and Green	£75.00p
Kaga/Taxan Black and Green	£99.95p
Sinclair QL Vision	£299.00p

PRINTERS

Centronics/RS 232 interface	£44.90p
DOT MATRIX PRINTERS.	
Brother M1009	£163.00p
Epson LX80	£199.00p
Epson FX80	£324.00p
Taxan Kaga KP810	£280.00p
DAISYWHEEL PRINTERS.	
Smith Corona TP1	£189.00p
Brother HR15	£349.00p

Telephone for prices on other printers. Please add **£5.00** delivery and VAT to both printers and monitors.

DISC-DRIVES

Discovery 1 by Opus 178k	£199.95p
Discovery 2 by Opus 360k	£329.95p

QL

MAILING LIST. £14.95p
This program will allow you to quickly store and retrieve names and addresses from within ARCHIVE. Features include single key functions, prints address labels, exports files to Quill for mailing list; also compatible with our stockcontrol file.

STOCK CONTROL. £14.95p
Keeps a complete record of all your stock items including retail price, trade price, minimum order level, items on order and many other features.

INTEGRATED ACCOUNTS. £89.95p
This new program from Sinclair will allow you to produce full profit and loss account.

PAYROLL. £63.25p
Calculates weekly, monthly or 4 weekly payroll full tax calculations, coin analysis and payment rounding.

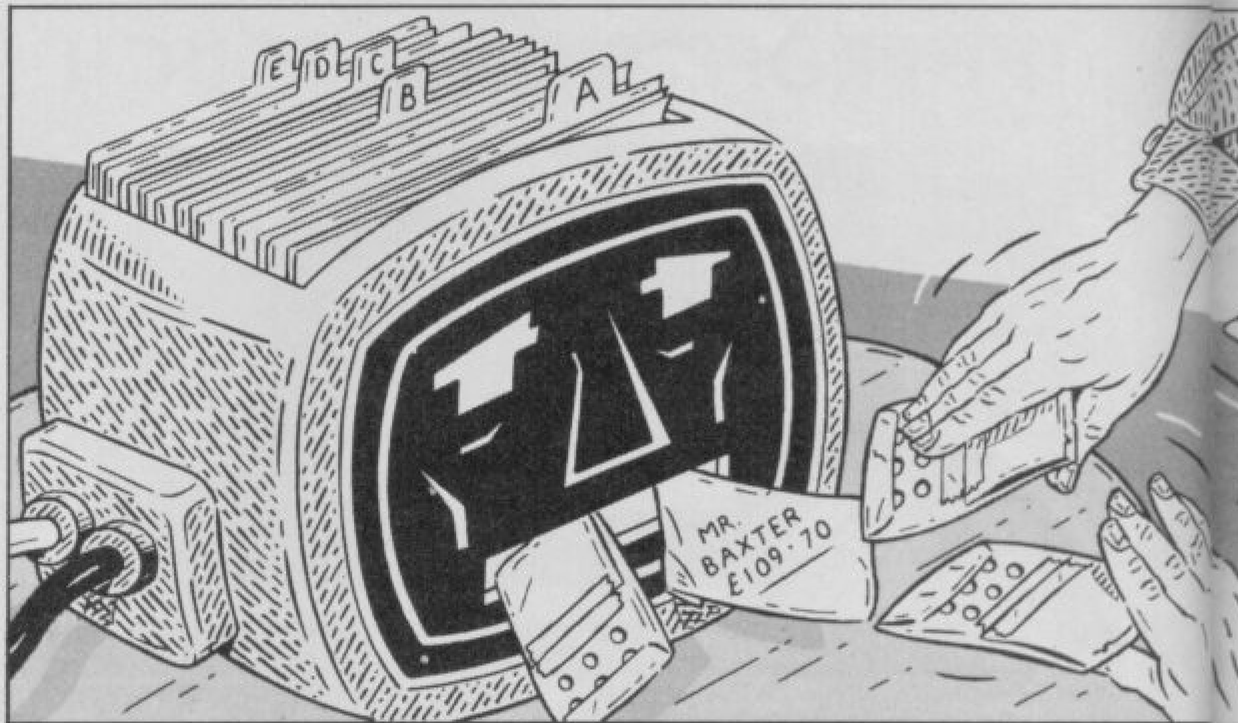
CENTRONICS INTERFACE	£29.95p
RS 232 LEAD	£10.00p
MONICHROME MONITOR LEAD	£5.00p

Access

TRANSFORM LTD (Dept. SU) 01-658 6350
24, West Oak, Beckenham, Kent BR3 2EZ

VISA

QL Payroll



ONE OF THE most time consuming tasks in any business is the payment of employees. **QL Payroll** from TR Computer Systems is a complete package that will prepare your payroll, produce payslips, management reports and even print the cheques.

For £63.25 you get two microdrive cartridges — one for the system and one for the data, an extensive manual and a system that will handle up to 75 employees, with weekly and monthly paid employees being processed at the same time.

For a further £40.25 per year, an optional maintenance contract is available. In addition to a problem solving service you get free updates and are kept informed of changes to tax and National Insurance regulations.

The system allows employees to be paid in a variety of ways to cover almost any situation. Apart from basic pay, salary or hourly rate, up to three overtime rates, bonus payments, SSP and SSP reclaimed, pre-tax adjustments and miscellaneous payments can be paid. Although SSP is included, only the entry of the actual amounts paid or reclaimed is catered for.

On the deductions side, apart from tax, National Insurance and company pension plan, up to six other types of deductions can be made. Two of those have special uses — one is for the repayment of an interest free loan, the other is used for a variable deduction per pay period. The names are user-definable.

Other features of the system allow employees to be paid by cheque or by cash. For those paid in cash, a coin analysis of the total payroll is available. A minimum number of one pound coins per pay packet can be specified, while to cut down further on the weight of cash collected from the bank, payments can be rounded to the nearest 5p, 10p, 20p, 50p or £1. Before payslips or cheques are printed a range of clock numbers must be given, although the system will work out and print only those that are ready to be printed.

The wide range of management reports includes a net payroll analysis, employee records — showing payments per period and in the year to date, lists of deductions, cheques, SSP payments, National Insurance and company pension payments. Together with an end of tax year report they provide a comprehensive audit trail. P60s and P35s can be printed although there is no facility for printing P45s.

As with any system, the worst part is always setting up the initial data. Once that is done only the variable items need be entered again. To enter data an on-screen number against the item must be entered first. While data entry is slower than many systems, this method allows a great deal of flexibility in the order items are entered and also provides time to correct entries as they go in.

QL Entrepreneur

STARTING a new company is risky and every little bit of help given is doubly welcome.

QL Entrepreneur, written by Triptych Publishing and published by Sinclair Research, is designed as a complete package to help the budding businessman start his new venture on a sound financial footing.

It consists of a teaching program, two applications programs — one for a single product company, the other for a multi-product company — and a manual. A spare data cartridge is also included.

The program is a conversion from an earlier Spectrum version, published by Collins Soft and reviewed in the September issue.

The teaching program is an extension of the manual and is used for displaying the results of the worked examples and the limited self test on a balance sheet.

Options, corresponding to chapters in the manual, are selected by pressing two keys. Once an option is selected further progress is made by responding to the prompts in the manual, usually by pressing successive numbers.

Seeing individual transactions shown against a balance sheet, and the effect on the balance sheet is effective, but by having to switch back and forth from the manual much of it is lost. As a text book, the manual is no more than adequate although the chapter entitled Planning a Business is excellent and well worth reading.

Before using either of the applications programs a lot of research and preparation is needed.

Both programs work on the basis of entering all the costs of the business, as fixed assets, expenses, employees, and as direct costs with details of when the payments are to be made. Projected sales volumes month by month and the selling price are also added. Details of any proposed initial funding are entered later.

The display is divided into three windows, the top two are used as display screens. As one screen is filled you are given the opportunity to use the other for the next stage. That allows important details to be kept on the screen and effectively allows twice as much information to be displayed.

For the multi-product program, direct costs are entered as a percentage



Selecting options from the menu is done in the same way. With 21 options the menu is spread across two screens. I found switching between the two screens awkward and would have preferred the use of subsidiary menus or a redesigned single screen menu.

Bearing in mind that in many businesses the people using this package are unlikely to be computer literate, I would prefer to see a few more prompts shown on the screen. However, with the excellent detail in the manual it should cause few problems when in use. *Mike Wright*

Publisher TR Computer Systems, Hine Heath, Stanton, Nr Shrewsbury
Price £63.25
★★★★

V-notch

WHETHER IT IS pictures, coins or stamps, collecting is, perhaps, today's most popular hobby. As a collection grows it becomes more difficult to find any given item and an index of some sort is often needed.

V-notch from Transform is designed to simulate a card index where the cards contain holes that relate to different characteristics. Those holes can be cut out — notched — if a characteristic is not applicable. To find the cards with a given characteristic, a needle is inserted in the appropriate hole and lifted. The required cards are lifted out while the others remain in their place. Instructions for converting **V-notch** to microdrive are contained in the manual.

The program is easy to use and is run from a main menu, attractively designed as a set of six index cards. New file indexes can be created, the cards or the index headings edited, and an index searched.

Each card is given a unique identifier between three and nine characters long. The length is determined when a new file is created and cannot be changed. The maximum number of cards varies from about 1900 with a nine character identifier to over 3500 if only three characters are used.

Having created the file index, the index headings need to be added via the edit index headings option. You will need to spend some time beforehand deciding what to use as headings. Although, with a possibility of 32 different ones there is plenty of scope for adding extra categories later.

In creating the headings you will also need to remember that each heading can only register as true or false. That makes this method of indexing unsuitable where more than one possibility exists, for instance, recording a stamp collection by country.

Up to 11 characters can be used for the headings which are easily set-up or changed. Adding, deleting or editing cards is just as easy, although a card must first be found by entering its identifier when editing or deleting.

A search of the index can be done in several ways. A card can be displayed by searching for its identifier; a list of cards with one or more characteristics can be found and displayed. That is the most important feature of the program and the speed with which a search is completed is very impressive.

This is a quick to learn, easy to use program with a fast search routine. Whenever I have used this type of index in the past, I have always found the space at the bottom of the card most useful for additional notes. Unfortunately, no provision has been made for this, possibly because it would drastically reduce the number cards that could be used. *Mike Wright*

Publisher Transform
Price £12.95
Memory 48K
★★★

Illustration: Stephen Wright

of the selling price, compared to the unit cost per component used in the single product program.

Up to ten products can be included in the multi-product program, although greater numbers can be handled by grouping products in some way.

Both programs automatically produce a monthly cash flow analysis, showing monies spent and received, and the balance. The amounts are calculated on the basis that credit payments are made on time at the end of the credit period.

That analysis is produced automatically, and only if the company is in debt are details of the initial funding requested. The profit and loss account and the balance sheet for any specific period can also be produced.

Perhaps the most important aspect is the sensitivity-ratio analysis feature. The ratio analysis is the average amount of time that credit is given and received, and the sensitivity analysis shows the effect of ten percent increases and decreases in income and costs.

The program now comes into its own by allowing details to be changed easily, and the results recalculated until the right mix to produce a profitable company is found.

Unfortunately, the business is unlikely to go exactly to plan and a weather eye will need to be kept on its development, and details altered accordingly to forecast future performance. A save/load option allows all that to be done easily.

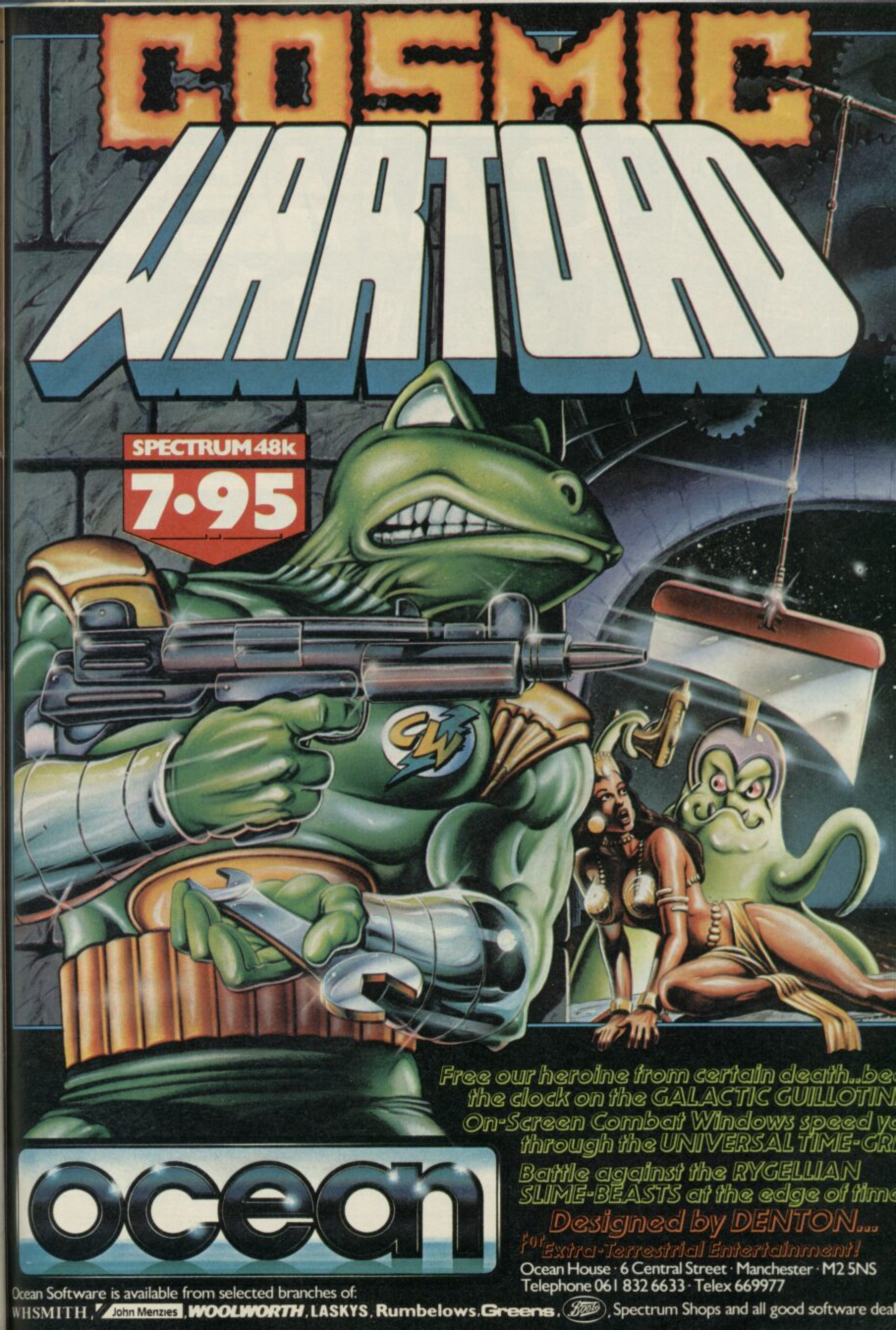
QL Entrepreneur is one of those packages I find irritating, the applications programs are well thought out and presented and cover an area often missed by new businessmen. The teaching program, however, is very disappointing and is probably the most wasteful use the QL has been put to. Other than the recently-released arcade oldie, **QL Meteor Storm,** of course.

Compared to the Spectrum version, the only major differences seem to lie in the displays for the applications program, while the teaching program is virtually identical.

That makes the price of the QL version, at £34.95, compared to the Spectrum version at £14.95 seem very poor value for money.

Mike Wright

Publisher Sinclair Research
Price £34.95
★★


COSMIC
WARTOAD
SPECTRUM 48k
7·95
CW
Free our heroine from certain death..bea
the clock on the GALACTIC GUILLOTIN
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through the UNIVERSAL TIME-GRI
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WHSMITH, John Menzies, WOOLWORTH, LASKYS, Rumbelows, Greens, Boots, Spectrum Shops and all good software deal

PROGRAM PRINTOUT



GRAPHICS INSTRUCTIONS

IN GENERAL, graphics abbreviations are enclosed in brackets, which should not be entered. A string of the same graphics character is represented in the form (3*A) which would be entered as AAA, where A is the graphics character. A space, where it is important to have the correct number of spaces, is indicated by (sp). Spaces in text will not normally be indicated. Where several graphics characters are used, they are separated by commas, which should not be entered. With Spectrum and QL listings the letter l has a flat top and the numeral 1 has a sloping top.

The above applies to all Sinclair machines. The following instructions are for specific machines.

ZX-81: ZX-81 listings are generally reproduced as they appear when you enter them, spaces and all. Where extensive graphics are used, REM statements will be inserted to provide a guide to the position of each character.

Spectrum: User-defined graphics are represented by underlined letters, without brackets. Type the appropriate letter while in graphics mode. The underline does not appear on the screen. Inverse characters have the letter i before them, e.g. iZ, iA, iP. Block graphic characters are indicated by g followed by the number of the appropriate key: g4 would mean the block graphics on key 4, ig4 the inverse of that graphic.

Control codes are indicated by cc before the character, and are obtained by pressing CAPS SHIFT while in extended mode. They do not appear on the screen but may change the colour of the cursor and will affect what is printed after them: cc3,i* would thus have the effect of printing an inverse asterisk in red.

QL: User-defined graphics on the QL are indicated by a description of the keys pressed to obtain them, underlined and in brackets. Thus (CTRL + 9) means press CTRL and 9 together. The same applies for unusual characters within the QL character set, which our printer is unable to reproduce.

GRAB THE GOLD from the **Tower of Doors** — but don't get trapped. A strategy game by Philip Laflin of Rotherham, Yorkshire, it runs on the 48K Spectrum or Spectrum Plus.

You must move around the rooms of the tower picking up gold, but every time you use a door, it's bricked up behind you. How much gold can you collect before you finally get boxed in?

The program uses our special abbreviations for graphics characters, so please read the instructions above before typing in the listing.

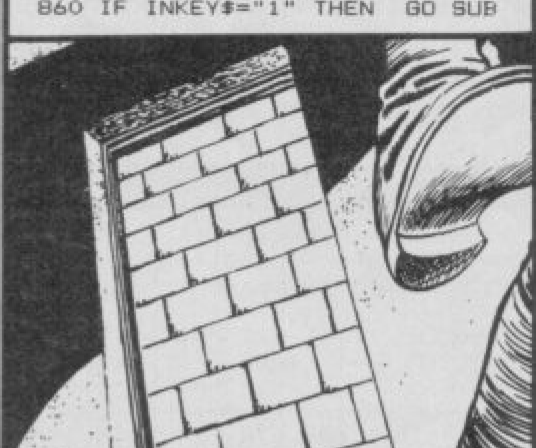
```
   1 LET AG=0: LET AT=1: LET HI=
1: LET H$="COMP"
  10 REM  THE TOWER OF DOORS
  15 PRINT AT 10,10; INK 7; BRIG
HT 1; PAPER 2; FLASH 1;"PLEASE W
AIT"
  20 POKE 23658,8
  30 RESTORE 70
  40 DIM B(8,16): DIM l(144): DI
M r(144): DIM u(144): DIM d(144)
  60 FOR G=1 TO 16: READ L(G),U(
G),R(G),D(G)
  66 NEXT G
  70 DATA 0,0,1,1,1,0,1,1,1,0,1,
1,1,0,0,1,0,1,1,1,1,1,1,1,1,1,1,
1,1,1,0,1,0,1,1,1,1,1,1,1,1,1,1,
1,1,1,0,1,0,1,1,0,1,1,1,0,1,1,1,
0,1,1,0,0
  80 LET F=16
  90 FOR G=1 TO 16
 100 LET L(G+F)=L(G): LET U(G+F)
=U(G): LET D(G+F)=D(G): LET R(G+
F)=R(G)
 110 NEXT G
 120 LET F=F+16
 130 IF F=144 THEN  GO TO 150
 140 GO TO 90
 150 BORDER 0: PAPER 0: INK 7: C
LS
 170 PRINT AT 0,5; INK 7; PAPER
2; BRIGHT 1;"THE TOWER OF DOORS"
 172 PRINT  INK 4;" YOU ARE STUC
K IN THE GROUND    LEVEL OF A GO
LD MINE STORAGE    TOWER."
 174 PRINT ' INK 5;" THE TOWER I
S 8 LEVELS HIGH,AND EACH LEVEL H
AS 16 ROOMS,EACH     CONTAINING A
 BAR OF GOLD."
 175 PRINT ' INK 6;" YOUR ONLY M
EANS OF ESCAPE IS TOCOLLECT ALL
THE GOLD SO THAT     YOU WILL BE
THE CORRECT WEIGHT  TO OPERATE T
HE ESCAPE MECHANISM."
 176 PRINT ' INK 7;" THE TROUBLE
 IS THAT WHEN YOU    HAVE GONE TH
ROUGH A DOOR IT IS  SEALED TIGHT
LY BEHIND YOU."
 180 PRINT ' INK 4;" IF YOU ARE
TRAPPED IN A ROOM   WITH ALL 4 D
OORS SEALED YOU WILLSUFFOCATE !"
 183 PRINT TAB 8; FLASH 1; PAPER
 2;"PRESS ANY KEY"
 184 PAUSE 0: CLS
 185 PRINT TAB 8; INK 7; PAPER 2
;"***CONTROLS***"
 186 PRINT '"TO MOVE:-"
 187 PRINT '"FORWARD A ROOM.....
.......PRESS 7BACK A ROOM........
.......PRESS 6RIGHT A ROOM.......
.......PRESS 8LEFT A ROOM........
.......PRESS 5 "
 188 PRINT '" IF YOU WANT TO MOV
E UP A LEVEL WHEN A LADDER IS IN
 THE ROOM,   PRESS 2"
 189 PRINT '" IF YOU WANT TO MOV
E DOWN A      LEVEL WHEN A HOLE I
S IN THE      ROOM,PRESS 3"
 190 PRINT '" TO COLLECT A GOLD
BAR PRESS 1"
 210 PRINT 'TAB 8; FLASH 1; PAPE
R 2;"PRESS ANY KEY"
 220 PAUSE 0
 230 CLS : BEEP .1,1
 240 INPUT "YOUR NAME (UP TO 6 C
HARACTERS   LONG):";P$
 400 PRINT AT 10,10; INK 7; PAPE
R 2; BRIGHT 1; FLASH 1;"PLEASE W
AIT"
 410 LET DR=0: LET L=1
 411 IF AG=10 THEN  LET R=RS: GO
 TO 460
 420 LET R=INT (RND*16)+1: LET R
S=R: DIM H(8): DIM I(8): FOR F=1
 TO 7
 430 LET H(F+1)=INT (RND*16)+1
 440 LET I(F)=INT (RND*16)+1
 450 NEXT F
 460 RESTORE 480
 470 FOR F=USR "A" TO USR "Q"+7:
 READ A: POKE F,A: NEXT F
 480 DATA 255,129,129,255,255,24
,24,255
 490 DATA 192,255,192,255,192,25
5,192,255,3,255,3,255,3,255,3,25
5
 500 DATA 3,15,63,63,127,127,255
,255,192,240,252,252,254,254,255
,255,255,255,254,254,252,252,240
,192,255,255,127,127,63,63,15,3
 510 DATA 1,2,2,4,4,15,8,19,255,
0,0,0,0,255,0,146,128,64,64,32,3
2,240,16,104,20,40,40,83,81,79,1
28,255,42,42,42,170,42,19,0,255,
88,84,76,74,74,113,1,255
 512 DATA 32,32,184,252,62,29,0,
0,0,0,184,124,63,29,4,4,12,8,31,
60,60,56,16,32,4,8,28,60,60,248,
16,48
 520 DIM B(8,16)
```

continued on page 102

continued from page 101

```
 600 CLS : REM SCREEN
 610 PLOT 0,0: DRAW 255,0: DRAW
0,175: DRAW -255,0: DRAW 0,-175:
 PLOT 16,136: DRAW 0,24: DRAW 4,
4,-4: DRAW 219,0: DRAW 4,-4,-4:
DRAW 0,-24: DRAW -4,-4,-4: DRAW
-219,0: DRAW -4,4,-4
 620 PLOT 24,8: DRAW -16,16: DRA
W 0,80: DRAW 16,16: DRAW 208,0:
DRAW 16,-16: DRAW 0,-80: DRAW -1
6,-16: DRAW -208,0
 630 PLOT 40,32: DRAW -8,8: DRAW
 0,48: DRAW 8,8: DRAW 176,0: DRA
W 8,-8: DRAW 0,-48: DRAW -8,-8:
DRAW -176,0
 640 PLOT 40,32: DRAW -16,-24: D
RAW -16,16: DRAW 24,16: PLOT 32,
88: DRAW -24,16: DRAW 16,16: DRA
W 16,-24
 650 PLOT 216,32: DRAW 16,-24: D
RAW 16,16: DRAW -24,16: PLOT 216
,96: DRAW 16,24: DRAW 16,-16: DR
AW -24,-16
 660 PRINT AT 3,3;"SCORE:(5*sp)L
EVEL:(2*sp)ATTEMPT";AT;AT 4,3;"P
LAYER:(7*sp)HI:"
 670 PRINT AT 2,7; INK 7; PAPER
1;"THE TOWER OF DOORS"
 680 GO SUB 4000
 710 PRINT AT 14,14;"N"
 800 IF I(L)=R AND INKEY$="2" TH
EN  LET L=L+1: GO SUB 1520: GO S
UB 4000
 810 IF H(L)=R AND INKEY$="3" TH
EN  LET L=L-1: GO SUB 1500: GO S
UB 4000
 820 IF INKEY$="6" THEN  GO SUB
1000
 830 IF INKEY$="7" THEN  GO SUB
1010
 840 IF INKEY$="8" THEN  GO SUB
1020
 850 IF INKEY$="5" THEN  GO SUB
1030
 860 IF INKEY$="1" THEN  GO SUB
```





```
1060
 990 GO TO 710
 1000 IF D(L*16+R)=0 THEN  BEEP .
1,1: RETURN
 1001 PRINT AT 18,14;"(sp,g5)";AT
 19,14;"(sp,g5)";AT 20,14;"(sp,g
5)"
 1003 LET D(L*16+R)=0: LET R=R+4:
 LET U(L*16+R)=0
 1004 FOR F=14 TO 18: PRINT AT F,
14;"O";AT F-1,14;"(sp)": BEEP .0
01,50: NEXT F: GO SUB 4000: RETU
RN
 1010 IF U(L*16+R)=0 THEN  BEEP .
1,1: RETURN
 1011 PRINT AT 8,14;"(ig5,sp)";AT
 9,14;"(ig5,sp)";AT 7,14;"(ig5,s
p)"
 1012 PRINT AT 14,14;"(sp)": FOR
F=13 TO 9 STEP -1: PRINT AT F,15
;"N";AT F+1,15;"(sp)": BEEP .001
,50
 1013 IF B(L,R)=0 THEN  PRINT AT
12,15; INK 6;"H";AT 13,15;"K"
 1014 BEEP .001,50: NEXT F
 1015 LET U(L*16+R)=0: LET R=R-4:
 LET D(L*16+R)=0: GO SUB 4000: R
ETURN
 1020 IF R(L*16+R)=0 THEN  BEEP .
1,1: RETURN
 1021 PRINT AT 13,28;"(3*g3)";AT
14,28;"(3*sp)"
 1022 FOR F=14 TO 28: PRINT AT 14
,F;"(sp)P": BEEP .001,50: NEXT F
 1024 LET R(L*16+R)=0: LET R=R+1:
 LET L(L*16+R)=0: GO SUB 4000: R
ETURN
 1030 IF L(L*16+R)=0 THEN  BEEP .
1,1: RETURN
 1031 PRINT AT 13,1;"(3*sp)";AT 1
4,1;"(3*ig3)"
 1032 PRINT AT 14,14;"(sp)": FOR
F=13 TO 2 STEP -1: PRINT AT 13,F
;"Q(sp)": BEEP .001,50: NEXT F
 1033 LET L(L*16+R)=0: LET R=R-1:
 LET R(L*16+R)=0: GO SUB 4000: R
ETURN
 1060 IF B(L,R)=0 THEN  GO TO 106
2
 1061 RETURN
 1062 PRINT AT 12,15;"(3*sp)";AT
13,15;"(3*sp)": BEEP .01,60: BEE
P .01,40: LET B(L,R)=1: LET DR=D
R+10: PRINT AT 3,9;DR
 1063 IF DR=1280 THEN  GO TO 1100
 1064 RETURN
 1100 FOR G=1 TO 4: FOR F=1 TO 7
 1102 PAPER F: INK 0: BORDER F: C
LS
 1103 PRINT AT 10,8; FLASH 1;"YOU
'VE DONE IT !!": BEEP .1,F: NEXT
 F: NEXT G
 1104 BORDER 0: PAPER 0: INK 7: C
LS
 1105 PRINT AT 10,0;"YOU COMPLETE
D THE TOWER OF DOORSIN ";AT;" AT
TEMP(S).WELL DONE !!": GO TO 50
01
 1500 FOR F=40 TO 10 STEP -1: BEE
P .01,F: NEXT F: RETURN
 1520 FOR F=10 TO 40: BEEP .01,F:
 NEXT F: RETURN
 4000 IF L(L*16+R)=1 THEN  PRINT
AT 13,1;"(ig8,iO,ig8)";AT 14,1;"
(3*ig8)"
 4001 IF L(L*16+R)=0 THEN  PRINT
AT 13,1; INK 2; PAPER 6;"AAA";AT
 14,1;"AAA"
 4002 IF R(L*16+R)=1 THEN  PRINT
AT 13,28;"(3*ig8)";AT 14,28;"(ig
8,iO,ig8)"
 4003 IF R(L*16+R)=0 THEN  PRINT
AT 13,28; INK 2; PAPER 6;"AAA";A
T 14,28;"AAA"
 4004 IF U(L*16+R)=1 THEN  PRINT
AT 7,14;"(2*ig8)";AT 8,14;"(ig8,
O)";AT 9,14;"(2*ig8)"
 4005 IF U(L*16+R)=0 THEN  PRINT
AT 7,14; INK 2; PAPER 6;"AA";AT
8,14;"AA";AT 9,14;"AA"
 4006 IF D(L*16+R)=1 THEN  PRINT
AT 18,14;"(2*ig8)";AT 19,14;"(iO
,ig8)";AT 20,14;"(2*ig8)"
 4007 IF D(L*16+R)=0 THEN  PRINT
AT 18,14; INK 2; PAPER 6;"AA";AT
 19,14;"AA";AT 20,14;"AA"
 4008 IF H(L)=R THEN  PRINT AT 11
,8; INK 5;"DE";AT 12,8; INK 5;"G
F"
 4010 IF I(L)=R THEN  FOR F=7 TO
13: PRINT AT F,22; INK 6;"BC": N
EXT F
 4011 IF I(L)<>R THEN  FOR F=7 TO
 13: PRINT AT F,22;"(2*sp)": NEX
T F: PRINT AT 6,22;"__";AT 9,22;
"__"
 4012 IF H(L)<>R THEN  PRINT AT 1
1,8;"(2*sp)";AT 12,8;"(2*sp)"
 4013 IF H(L)<>R AND I(L)<>R AND
U(L*16+R)=0 AND D(L*16+R)=0 AND
L(L*16+R)=0 AND R(L*16+R)=0 THEN
```



```
 GO TO 5000
 4014 PRINT AT 3,20; FLASH 1;L;AT
 3,9; FLASH 0;DR;AT 4,20;HI;H$;A
T 4,10;P$
 4015 PRINT AT 12,15;"(3*sp)";AT
13,15;"(3*sp)"
 4016 IF B(L,R)=0 THEN  PRINT AT
12,15; INK 6;"HIJ";AT 13,15; INK
 6;"KLM"
 4017 RETURN
 5000 PRINT AT 10,3; FLASH 1; INK
 2; PAPER 7; BRIGHT 1;"YOU DIE F
ROM SUFFOCATION !"
 5001 INPUT "ANOTHER GO Y/N ?";Z$
 5002 IF Z$="Y" THEN  GO TO 6000
 5003 STOP
 6000 CLS : PRINT AT 10,0;" DO YO
U WANT ANOTHER GAME WITH  ALL TH
E LADDERS AND HOLES IN   THE SA
ME POSITIONS ? ( Y / N ) "
 6001 INPUT V$
 6002 IF V$="Y" THEN  LET AT=AT+1
: LET AG=10: GO TO 6009
 6003 LET AT=1: LET AG=0
 6009 IF DR>HI THEN  LET HI=DR: L
ET H$=P$
 6010 CLS : GO TO 10
```



TIME TO DO the weekly chores, and wash all those smelly jeans and pinafores. You play the harassed washer in this game by Garry Lancaster of Bristol. Use the cursor keys to move, and fetch clothes from the clothes bin, then pegs from the peg box, and finally hang up the washing by going to the top left corner of the line.

Unfortunately a hippopotamus lives next door, and keeps splashing mud on the clothes. Every stain makes you more enraged.

To enter the program, first type in Listing 1 and SAVE it with the command SAVE "wash" LINE 9900. Now type in Listing 2 and Run. When it has finished, prepare the tape and SAVE by typing in SAVE "wcode" 30050,110. **Washing Line** runs on any Spectrum.

The program uses our special abbreviations for graphics characters, so please read the instructions on the first page of Program Printout before typing in the listings.

Listing 1

```
   1 RUN 9000
  10 LET I=(INKEY$="6")-(INKEY$=
"7"): LET J=(INKEY$="8")-(INKEY$
="5"): IF I<>0 THEN  LET AX=1
  15 IF J<>0 THEN  LET AY=J
  20 PRINT AT X,Y;"(2*sp)";AT X+
1,Y;"(sp)"+("(sp)" AND W=1): LET
 X=X+(AX AND X+AX>3 AND X+AX<18)
: LET Y=Y+(AY AND Y+AY>-1 AND Y+
AY<31): LET X$=SCREEN$ (X+1,Y+1)
: IF W AND X$<>"(sp)" THEN  GO T
O 110
  25 PRINT  INK 6;AT X,Y;A$;AT X
+1,Y;B$: IF W THEN  PRINT AT X+1
,Y+1; INK 7;"E"
  30 IF X=4 AND Y=0 AND P=1 THEN
  GO SUB 200
  35 IF X=17 AND Y=0 AND W=0 THE
N  GO SUB 300
  40 IF X=17 AND Y=30 AND P=0 AN
D W=1 THEN  GO SUB 400
  50 POKE 23728,INT (RND*32)
  60 IF RND>.5 THEN  LET V=USR 3
0133
  70 LET V=USR 30050: IF W AND A
TTR (X+1,Y+1)=2 THEN  LET V=V+1:
 LET P=0: LET W=0: LET A$(2)="(s
p)"
  75 IF V=0 THEN  GO TO 10
  80 BEEP .5,0: BEEP 1,-10: LET
V=V-1: LET LI=LI-1: PRINT  INK 4
;AT 0,28;LI;"(sp)": IF LI=0 THEN
  GO TO 150
  90 IF V>0 THEN  GO TO 80
 100 GO TO 10
 110 LET A$(2)="(sp)": PRINT  IN
K 6;AT X,Y;A$;AT X+1,Y;B$: LET W
=0: LET P=0
 120 BEEP .5,0: BEEP 1,-10: LET
LI=LI-1: PRINT  INK 4;AT 0,28;LI
;"(sp)": IF LI>0 THEN  GO TO 25
 150 PRINT AT 10,10; FLASH 1; IN
K 6;"GAME OVER"
 160 PRINT AT 16,2; INK 7;"PRESS
 ANY KEY TO PLAY AGAIN": PAUSE 0
 170 PAUSE 0: RUN 9070
 200 LET W=0: LET P=0: LET SC=SC
+10*LEV
 210 PRINT AT X+1,Y+1;"(sp)";AT
0,7; INK 4;SC
 220 LET A$(2)="(sp)": OVER 1: P
RINT  INK 7;AT 3,F;"(ig8)": OVER
 0: LET F=F+2
 230 IF F=26 THEN  GO TO 500
 240 RETURN
 300 LET W=1: PRINT AT X+1,Y+1;
INK 7;"E": RETURN
 400 LET P=1: LET A$(2)="D": PRI
NT AT X,Y+1; INK 6;"D": RETURN
 500 PRINT AT 10,10; INK 6; FLAS
H 1;"WELL DONE": LET LEV=LEV+1:
IF LEV=10 THEN  GO TO 9910
 510 FOR A=0 TO 60: BEEP .05,A:
NEXT A
 520 CLS : GO TO 9090
9000 FOR A=145 TO 149: FOR B=0 T
O 7
9010 READ C: POKE USR (CHR$ A)+B
,C: NEXT B: NEXT A
9020 DATA 56,68,68,56,16,16,16,2
54
9030 DATA 17,56,124,254,254,68,6
8,198
9040 DATA 0,0,0,0,0,0,80,80
9050 DATA 248,248,248,248,248,0,
0,0
9060 DATA 0,0,60,60,60,60,0,0
9070 PAPER 0: BORDER 0: INK 0: C
LS
9080 LET SC=0: LET LI=10: LET LE
V=1
9090 LET AX=0: LET AY=0: LET W=0
: LET P=0: LET X=5: LET Y=0: LET
 A$="B(sp)": LET B$="C": CLS : L
ET F=6: LET LI=10
9100 FOR A=0 TO LEV*4+12: POKE 3
0000+A,127: NEXT A: POKE 23728,I
NT (RND*32): POKE 30000+LEV*4+12
,128
9110 PRINT  INK 4;AT 0,1;"SCORE=
";SC;AT 0,13;"WEEKS=";LEV;AT 0,2
1;"TEMPER=";LI
9120 PRINT  INK 5;AT 2,0;"(3*ig8
)"'"(3*ig8)"
9130 PRINT  INK 5;AT 2,29;"(3*ig
8)";AT 3,29;"(3*ig8)"
9140 PLOT  INK 5;0,152: DRAW  IN
K 5;255,0
9150 PRINT AT 19,0; INK 2;"(9*ig
8)"'"(ig8,iC,iL,iO,iT,iH,iE,iS,i
g8"'"(9*ig8)"
9160 PRINT  INK 2;AT 19,26;"(6*i
g8)";AT 20,26;"(ig8,iP,iE,iG,iS,
ig8)";AT 21,26;"(6*ig8)"
9170 BEEP .5,LEV
9180 GO TO 10
9900 CLEAR 29999: LOAD ""CODE :
RUN 9000
9910 FOR A=-60 TO 60: BEEP .05,A
: NEXT A: CLS
9920 PRINT "YOU SURVIVED ALL 9 W
EEKS!!!"
9930 PRINT ''"YOUR SCORE IS ";SC
9940 GO TO 160
```

Listing 2

```
  10 DEF FN H(H$)=(16*(CODE H$-4
8-(7 AND H$(1)>"9"))+CODE H$(2)-
48-(7 AND H$(2)>"9"))
  20 FOR A=30050 TO 30155 STEP 8
  30 READ H$
  40 LET B=0
  50 POKE A+B,FN H(H$)
  60 LET B=B+1: LET H$=H$(3 TO )
  70 IF H$<>"" THEN  GO TO 50
  80 NEXT A
  90 DATA "010000212E752323"
 100 DATA "7EFE80C8FE7F28F6"
 110 DATA "3E16D77ED7237ED7"
 120 DATA "3E20D72B7E3D77FE"
 130 DATA "03201BE5216058D1"
 140 DATA "D5131A16005F197E"
 150 DATA "FE0720043E027703"
 160 DATA "E1367FC368753E16"
 170 DATA "D77ED7237ED73E10"
 180 DATA "D73E02D73E95D72B"
 190 DATA "C368752130757EFE"
 200 DATA "80C8F37F28042323"
 210 DATA "18F43612233AB05C"
 220 DATA "77C9"
```

IT'S REFUGEE saving time again, folks, in **Krakatoa 2012** by John Pitcher of Aberdeen. This time the aliens are involved as well — you have to collect ten of them and transport them to your mother ship while dodging the pod-like alien craft. After that, it's lob the dynamite down the volcano and watch the whole lot do the Hollywood spectacular.

Krakatoa 2012 works on the Spectrum Plus, and uses machine code routines to give you three screens of action, which, unusually for Program Printout, you can move between. An excellent game with sound effects as well — you won't regret typing this one in.

The program uses our special abbreviations for graphics characters, so please read the instructions on the first page of Program Printout before typing in the listing.




```
   3 INK 1: PAPER 7: CLS
   4 POKE 23658,8: PRINT "PLEASE
 WAIT": GO SUB 9000: GO SUB 8900
   5 GO SUB 9500: POKE 52000,29:
 POKE 52001,3: POKE 52002,0: POK
E 50263,27
   6 GO SUB 4000
  10 INK 1: PAPER 7: CLS : BORDE
R 1
  25 GO SUB 6000
  30 GO SUB 2500
  32 BORDER 1: LET l=USR 50180
  35 POKE 52004,152: POKE 52005,
153
 999 INK 1: LET L=USR 50114
1010 LET L=USR 50000
1032 LET l=USR 50200
1033 LET X=PEEK 52000: LET Y=PEE
K 52001
1034 IF FL=1 THEN  GO SUB 1200
1035 IF ATTR (Y,X)<>57 OR ATTR (
Y,X+1)<>57 THEN  GO SUB 7000
1040 LET l=USR 50114
1041 IF PEEK 52002=255 THEN  GO
SUB 3000
1042 IF X=30 OR X=0 THEN  GO SUB
 2000
1043 PAUSE .5
1050 LET CC=CC+1
1060 IF CC=99 THEN  GO SUB 1500
1090 LET l=USR 50144
1100 GO TO 1000
1200 BORDER 1: PRINT AT GD,CE;"(
sp)";AT GD+1,CE; INK 6;"Q": LET
l=USR 50497: LET GD=GD+1: IF GD=
16 THEN  LET FL=0: PRINT AT 16,C
E;"(sp)"
1210 RETURN
1500 LET CC=0
1505 IF RM=2 AND PEEK 23672<30 T
HEN  GO TO 1600
1510 IF RM=3 OR RM=1 THEN  GO TO
 1800
1520 RETURN
1600 INK 2: PRINT AT 14,13;"(6*O
)": GO SUB 1790
1601 INK 2: PRINT AT 15,13;"(6*O
)": GO SUB 1790
1610 PRINT AT 13,12;"(8*O)": GO
SUB 1790
1620 PRINT AT 12,12;"(8*O)": GO
SUB 1790
1630 PRINT AT 11,11;"(10*O)": GO
 SUB 1790
1640 PRINT AT 10,11;"(10*O)": GO
 SUB 1790
1650 PRINT AT 9,10;"(12*O)": GO
SUB 1790
1660 PRINT AT 8,10;"(12*O)": GO
SUB 1790
1670 PRINT AT 7,9;"(14*O)": GO S
UB 1790
1680 PRINT AT 6,9;"(14*O)": GO S
UB 1790
1690 PRINT AT 5,8;"(16*O)": GO S
UB 1790
1691 PRINT AT 4,8;"(16*O)": GO S
UB 1790
1692 PRINT AT 3,7;"(18*O)": GO S
UB 1790
1693 PRINT AT 2,7;"(18*O)": GO S
UB 1790
1694 INK 1
1695 GO SUB 7000
1700 INK 1: RETURN
1790 LET l=USR 50400: RETURN
1800 IF BM=10 OR KB=10 THEN  RET
URN
1805 LET GD=2: LET CE=INT (RND*2
0)+5: PRINT AT 2,CE; INK 6;"Q":
LET FL=1
1999 RETURN
2000 IF RM=1 AND X=30 THEN  LET
RM=2: POKE 52000,1: LET FL=0: GO
 TO 2500
2010 IF RM=2 AND X=30 THEN  POKE
 52000,1: POKE 50263,27: LET RM=
3: GO TO 2500
2011 IF RM=2 AND X=0 THEN  POKE
52000,29: LET RM=1: GO TO 2500
2020 IF RM=3 AND X=0 THEN  POKE
52000,29: POKE 50263,31: LET FL=
0: LET RM=2: GO TO 2500
2030 RETURN
2500 REM
2502 LET l=USR 50172: POKE 50190
,40: LET l=USR 50180
2503 LET fr=50202: LET se=50247
2505 IF RM=1 THEN  POKE fr,16: P
OKE se,16: GO TO 2550
2510 IF RM=2 THEN  POKE fr,42: P
OKE se,42: GO TO 2600
2520 IF RM=3 THEN  POKE fr,58: P
OKE se,58: GO TO 2650
2550 POKE 50282,17: PRINT AT 21,
0; PAPER 4;L$; PAPER 7;AT 21,3;
INK 4;"M";AT 21,0;"(3*sp)"
2555 LET Y=9-PE: FOR n=0 TO Y: P
RINT AT 20,N+13: INK 0;"U": NEXT
 n
2560 PRINT AT 20,9; INK 2;"M(2*i
g8)N"
2561 PRINT AT 20,6; INK 3;"TT";A
T 19,6;"MN"
2565 RESTORE 2565: DATA 4,31,23:
 FOR N=0 TO 2: READ C: PRINT AT
20,C; INK 2;"Q";AT 19,C;"P": NE)
T N
2570 PRINT AT 20,24; INK 4;"M(5*
sp)N";AT 19,25;"M(3*sp)N"
2599 INK 1: RETURN
2600 POKE 50282,14: PRINT AT 21,
0; PAPER 4;L$: PAPER 7
2605 PRINT AT 20,8; INK 0;"M(14*
sp)N";AT 19,9;"M(12*sp)N";AT 18,
10;"M(10*sp)N";AT 17,11;"M(8*sp)
N";AT 16,12;"M(6*sp)N"
2610 RESTORE 2610: DATA 1,3,30,2
6: FOR N=0 TO 3: READ C: PRINT A
T 20,C; INK 2;"Q";AT 19,C;"P": N
EXT N
2620 PRINT AT 20,28; INK 1;"RS"
2630 PRINT AT 20,5; INK 3;"CD";A
T 19,5;"AB"
2649 INK 1: RETURN
2650 POKE 50282,15: INK 1: PAPER
 7: PRINT AT 21,0; PAPER 4;L$; P
APER 7;AT 21,28; INK 4;"N";AT 21
,29;"(3*sp)"
2660 RESTORE 2660: DATA 1,5,3,13
,27,15: FOR N=0 TO 5: READ C: PR
INT AT 20,C; INK 2;"Q";AT 19,C;"
P": NEXT N
2670 PRINT AT 20,6; INK 4;"M(4*s
p)N";AT 19,7;"M(2*sp)N"
2680 PRINT AT 20,24; INK 3;"TT";
AT 19,24;"MN"
2685 PRINT AT 18,8; INK 3;"CD";A
T 17,8;"AB"
2686 PRINT AT 20,21; INK 1;"RS"
2687 PRINT AT 20,17; INK 3;"CD";
AT 19,17;"AB"
2690 PRINT AT 2,28; INK 0;"M(2*s
p)N";AT 3,28;"I";AT 3,31;"I";AT
```



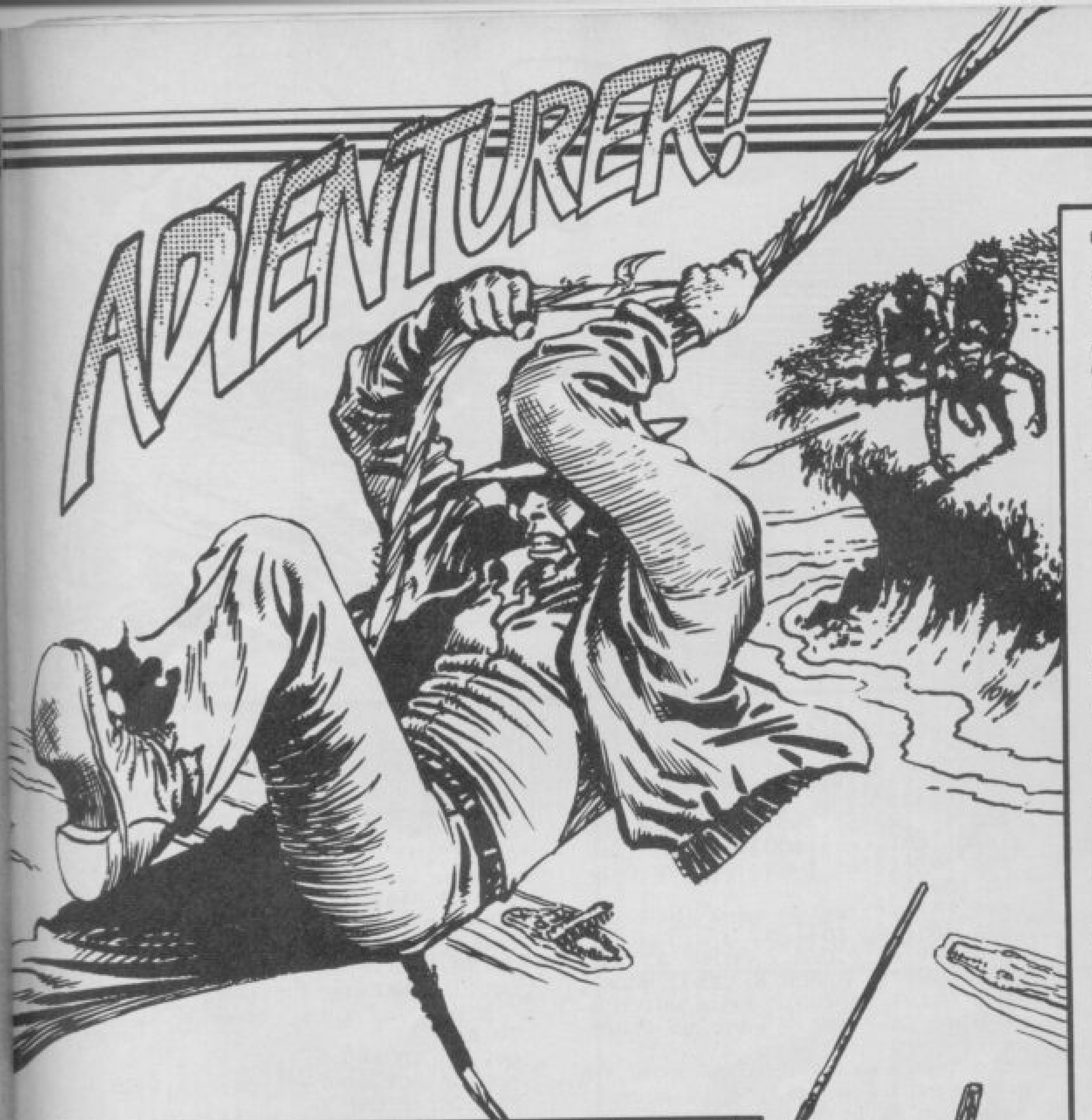
```
4,28;"(iN)";AT 4,31;"(iM)"
2699 INK 1: RETURN
2900 RETURN
3005 POKE 52002,0: BORDER 1: IF
RM=3 AND X=29 AND y>2 AND y<5 AN
D DOF=1 THEN  GO TO 3079
3006 IF BMF=1 THEN  GO TO 3100
3010 IF RM=1 AND X=10 AND Y=19 A
ND DOF=0 AND PE<10 THEN  GO TO 3
020
3015 RETURN
3020 LET DOF=1: LET PE=PE+1: PRI
NT AT 20,14+9-PE;"(sp)";AT 1,12;
 INK 1;"(ig8,iL,iO,iA,iD,iE,iD,2
*ig8)"
3050 POKE 50383,20: FOR N=150 TO
 50 STEP -10: POKE 50381,N: LET
L=USR 50380: NEXT N
3060 BORDER 1
3065 LET SC=SC+10: PRINT AT 0,3;
SC
3070 RETURN
3079 IF FN=1 THEN  GO TO 3800
3080 PRINT AT 1,11; INK 1;"(2*ig
8,iE,iM,iP,iT,iY,3*ig8)";AT 1,21
+PE; INK 0;"U"
3081 IF PE=10 AND BM=10 THEN  LE
T BMF=1
3082 INK 1
3083 POKE 50383,19: FOR N=50 TO
150 STEP 10: POKE 50381,N: LET L
=USR 50380: NEXT N
3084 BORDER 1
3085 LET DOF=0
3086 LET SC=SC+10: PRINT AT 0,3;
SC
3099 RETURN
3100 IF RM<>2 OR BMF<>1 OR X<13
OR X>17 THEN  RETURN
3120 FOR N=Y+2 TO 15: PRINT AT N
,X; INK 6;"O";AT N-1,X; INK 1;"(
sp)"
3121 BEEP .005,N: NEXT N
3122 PRINT AT N-1,X; INK 1;"(sp)
"
3124 LET KB=KB+1
3125 IF KB=10 THEN  GO TO 3500
3130 LET BM=BM-1: PRINT AT 1,BM;
 INK 6;"(sp)"
3140 INK 1
3150 LET l=USR 50468
3160 LET SC=SC+20: PRINT AT 0,3;
SC
3190 RETURN
3500 PRINT AT 10,7;"ALL CHARGES
DROPED "
3501 PRINT AT 11,6;"RETURN TO MO
THER SHIP"
3502 PRINT AT 1,0;"(sp)"
3505 LET SC=SC+100: PRINT AT 0,3
;SC
3506 PRINT AT 5,7;"100 BONUS POI
NTS"
3510 PAUSE 300: FOR n=0 TO 10: L
ET l=USR 50442: NEXT n
3520 PAUSE 0
3530 LET L=USR 50172
3540 GO SUB 2500
3560 LET BMF=0: LET DOF=1: LET F
N=1: RETURN
3800 FOR N=0 TO 50: LET L=USR 50
497: NEXT N
3810 PAUSE 30: LET RM=2: GO SUB
2500
3830 FOR n=0 TO 255: POKE 50540,
n: LET l=USR 50530: NEXT n
3840 CLS : FOR M=0 TO 20: FOR N=
0 TO 7: PRINT AT 3,8; INK N;"CON
GRATULATIONS": LET L=USR 50497:
NEXT N
3845 NEXT M
3850 PRINT AT 6,3; INK 2;"YOU HA
VE SAVED THE ISLAND"
3860 PRINT AT 10,7; INK 1;"YOU S
CORED ";SC
3870 PRINT AT 18,3; INK 4;"PRESS
 (S) TO PLAY AGAIN"
3880 IF INKEY$="O" OR INKEY$="S"
 THEN  GO TO 5
3890 GO TO 3880
4000 PAPER 0: CLS : POKE 50190,7
: LET L=USR 50180: INK 7: BORDER
 0
4010 FOR N=0 TO 2: LET L=USR 504
68: NEXT N
4015 FOR M=0 TO 3: FOR N=0 TO 7
4020 RANDOMIZE USR 50497: PRINT
AT 1,9; INK N;"KRAKATOA 2012"
4021 NEXT N: NEXT M
4030 PRINT AT 4,0;"DATELINE:5th
April 2012": LET l=USR 50497
4040 PAUSE 30: PRINT AT 6,0; INK
 5;"LOCATION:Krakatoa,Sunda Stra
ight          ,off Java,W. Indone
sia" : LET l=USR 50497
4050 PAUSE 30: PRINT AT 9,0; INK
 6;"REPORT:Alien Fleet invasion.
          Alien base inside vol
cano        Volcano active.
          Earth in danger.": LE
T l=USR 50497
4060 PAUSE 30: PRINT AT 14,0; IN
K 4;"MISSION:Rescue Islanders.
          Collect Charges.
          Drop Charges in Vol
cano.       Blow up Alien Base.
": LET l=USR 50497
4070 PAUSE 20: LET L=USR 50497:
PRINT AT 21,7; INK 2;"PRESS (S)
TO PLAY"
4080 PRINT AT 20,3; INK 3;"PRESS
 (I) FOR INSTRUCTIONS"
4090 IF INKEY$="S" THEN  RETURN
4091 IF INKEY$="I" THEN  GO TO 4
500
4092 GO TO 4090
4500 CLS : FOR M=0 TO 2: FOR N=0
 TO 7: PRINT AT 0,10; INK N;"INS
TRUCTIONS"
4505 LET L=USR 50442
4510 NEXT N: NEXT M
4520 PRINT AT 2,0; INK 6;"You ar
e the pilot of a Royal     Navy H
ELIJET.Your mission is to first
rescue all 10 islanders take the
m to your mothership.While doing
 this you must pick up 10 charge
s.Finally you must  drop these i
nto the volcano."
4530 PRINT AT 11,0; INK 5;"IJ  Y
OUR HELIJET."
4540 PRINT AT 13,0; INK 6;"O   C
HARGE."
4550 PRINT AT 15,0; INK 7;"U   I
SLANDER."
4560 PRINT AT 15,0; INK 2;"AB  R
OAMER UFO.";AT 16,0;"CD"
4570 PRINT AT 18,0; INK 4;"AB  G
UARD UFO.";AT 19,0;"CD"
4571 PRINT #0;"(11*sp)PRESS A KE
Y"
4572 PAUSE 0
```

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```
4580 CLS
4590 PRINT AT 1,0; INK 3;"AB  PA
RKED UFO.";AT 2,0;"CD"
4600 PRINT AT 4,0; INK 7;"M(2*ig
8)N";AT 5,0;"T(2*sp)T  YOUR MOTH
ERSHIP.";AT 6,0;"(iN,2*ig8,iM)"
4605 PRINT AT 8,0; INK 4;"AVOID
ALL OTHER OBJECTS OR THEY WILL W
EAKEN YOUR SHEILD.IT CAN  ONLY W
ITHSTAND 16 HITS"
4610 PRINT AT 12,8; INK 3;"USE A
RROW KEYS "
4620 PRINT AT 14,0;" AND (O) TO
PICK UP/DROP,ENTER"
4640 PAUSE 0: CLS
4650 PRINT AT 2,0;"To pick up a
islander you must  go to the lan
ding pad (M(2*ig8)N)    and pres
s (O) .To drop off the  islander
 you must go to your    mothersh
ip and press (O)"
4725 PRINT AT 10,0; INK 5;"SOFTW
ARE BY JOHN PITCHER EXTRA SPEC
IAL THANKS TO JOHN PARSONS."
4726 PRINT AT 16,0; INK 6; BRIGH
T 1;"THERE ARE 3 INTER-CONNECTIN
G    SCREENS TO TRAVEL BETWEEN."
4727 BRIGHT 0
4730 PRINT AT 21,8; INK 2;"PRESS
 A KEY TO PLAY"
4740 PAUSE 0: GO TO 10
5000 LET BM=BM+1: IF BM=11 THEN
 GO TO 7090
5010 PRINT AT 1,BM-1; INK 6;"O"
5020 IF PE=10 AND BM=10 THEN  LE
T BMF=1
5025 LET SC=SC+15: PRINT AT 0,3;
SC
5030 RETURN
6000 PRINT AT 0,0;"SC:";SC;"(5*s
p)"; INK 3;"(iK,iR,iA,iK,iA,iT,i
O,iA,isp,i2,i0,i1,i2)"; INK 2;"(
sp)SHIELD IJ"
6005 PLOT 71,175: DRAW 0,-7
6010 PRINT AT 1,0; INK 6;"(11*sp
)"; INK 1;"(2*ig8,iE,iM,iP,iT,iY
,2*ig8)"; INK 0;"(12*sp)"
6090 RETURN
7000 IF ATTR (Y,X)=62 OR ATTR (Y
,X+1)=62 THEN  LET l=USR 50442:
LET FL=0: GO TO 5000
7010 IF ATTR (Y,X)<>57 OR ATTR (
Y,X+1)<>57 THEN  GO TO 8000
7020 GO SUB 2500
7090 RETURN
8000 LET L=USR 50421
8010 LET LI=LI+1: IF LI=FO THEN
 GO TO 8500
8020 PLOT  INK 2; INVERSE 1;239+
LI,175
8030 DRAW  INK 2; INVERSE 1;0,-7
8035 IF x>=28 AND rm=3 THEN  POK
E 52001,3: POKE 52000,29
8040 INK 1: GO TO 2500
8090 RETURN
8500 BORDER 1: POKE 50190,15: LE
T l=USR 50180: PRINT AT 21,0; PA
PER 0; INK 6;"              GAME OV
ER           "
8505 PAPER 0
8510 FOR N=0 TO 20: LET l=USR 32
80: PRINT AT 21,0; INK 0; PAPER
0;l$: LET l=USR 50442: NEXT n
8530 PRINT AT 5,11; INK 3;"WELL
DONE": LET L=USR 50468: PAUSE 20
8540 PRINT AT 9,8; INK 4;"YOU SC
ORED ";SC: LET L=USR 50400: PAUS
E 20
8550 PRINT AT 20,7; INK 5;"PRESS
 (S) TO PLAY": POKE 50381,255: L
ET L=USR 50380
8555 PAPER 0: BORDER 0: POKE 501
90,7: LET L=USR 50180
8560 IF INKEY$="S" OR INKEY$="0"
 THEN  RUN 5
8570 GO TO 8560
8650 BORDER 0
8888 FOR N=50000 TO 65535: PRINT
 N;"(sp)";PEEK N: NEXT N
8900 RESTORE 8900: FOR n=42000 T
O 42067
8910 READ a: POKE n,a: NEXT n
8920 DATA 3,5,1,1,2,16,8,1,1,2,2
8,17,1,0,4,1,17,1,0,4,255,0,0,0,
0,0
8930 DATA 3,7,1,1,2,25,7,1,1,2,2
8,10,1,1,2,255
8940 DATA 10,7,1,1,2,20,3,1,1,2,
26,4,0,1,4,26,15,0,1,4,255,0,0,0
,0,0
8950 RETURN
9000 LET A=10: LET B=11: LET C=1
2: LET D=13: LET E=14: LET F=15
9001 LET LINE=9020
9002 LET ADDRESS=50000+(LINE-902
0)*6.4
9003 IF LINE=9110 THEN  GO TO 93
00
9004 RESTORE LINE: READ S$,SUM
9005 LET TOT=0
9006 LET BYTE=16*VAL S$(1)+VAL S
$(2)
9007 LET TOT=TOT+BYTE: POKE ADDR
ESS,BYTE
9008 LET S$=S$(3 TO )
9009 LET ADDRESS=ADDRESS+1
9010 IF S$<>"" THEN  GO TO 9006
9011 POKE 23695,255
9012 IF SUM=TOT THEN  PRINT "LIN
E ";LINE;" OK": LET LINE=LINE+10
: GO TO 9003
9013 PRINT "ERROR IN LINE ";LINE
: BEEP .4,10: BEEP .4,-16: STOP
9020 DATA "01FEF7ED78CB6720173A2
0CB3DFEFF20023E003220CB3E9A3224C
B3E9B3225CB01FEEFED78CB5720173A2
0CB3CFE1F20023E1E3220CB3E983224C
B3E993225CB",6729
9030 DATA "ED78CB67200D3A21CB3CF
E1420023E133221CBED78CB5F200D3A2
1CB3DFE0120023E023221CBED78CB472
0053EFF3222CBC93E02CD0116C639328
F5C3E16D73A",6093
9040 DATA "21CBD73A20CBD73A24CBD
73A25CBD7C93E02CD0116C639328F5C3
E16D73A21CBD73A20CBD73E20D73E20D
7C90616CD440EC9C90021C05A11C15A0
140003607ED",6847
9050 DATA "B0C9000000000000DD212
AA4DD7E00FEFF28225FDD560106023E1
6D77AD77BD73E20D73E20D71410F0DD2
3DD23DD23DD23DD2318D7DD212AA4DD7
E00FEFFC8DD",7302
9060 DATA "8602FEFF2804FE1B2008D
D7E02ED44DD7702DD7E01FE022804FE0
E2008DD7E03ED44DD7703DD7E00DD860
2DD7700DD7E01DD8603DD77010E90DDC
B047E280ADD",7034
9070 DATA "CB04BE3E04814F1804DDC
B04FEDD7E04CBBFC638328F5CDD56010
6023E16D77AD7DD7E00D779D70C79D70
C1410EEDD23DD23DD23DD23DD23C349C
4000E643E14",7089
9080 DATA "D3FE4110FE3E07D3FE411
0FE0D20EFC906012100007ED3FE237CF
E4020F710F23E01D3FEC9210A0011030
006C8E5D5C5CDB503C1D1E12310F4C90
601C5210003",7188
9090 DATA "110100E5CDB503E111100
0A7ED5220F0C110E9C90601C5210F001
13100E5CDB503E1111000A7ED5A7DFEF
F20EDC110E6C9015000210005ED42110
100E5C5CDB5",6778
9100 DATA "03C1E17CA720F0C900112
0001910FD20EEC92100581101580100
33600EDB0C9000000000000000000000
00000000000000000000000000000000
00000000000",2898
9300 RESTORE 9300: FOR n=USR "a"
 TO USR "u"+7
9310 READ a: POKE n,a: NEXT n
9320 DATA 0,0,4;7,30,127,127,166
,0,0,32,224,120,254,254,101,166,
255,127,31,7,0,0,0,101,255,254,2
48,224,0,0,0,0,0,4,7,31,127,127,
185,0,0,32,224,248,254,254,157,1
85,255,127,30,7,0,0,0,157,255,25
4,120,224,0,0,0
9340 DATA 24,127,231,90,194,127,
63,24,192,248,52,210,31,255,252,
96,3,31,44,75,248,255,63,6,24,25
2,231,90,67,254,252,24,1,3,7,15,
31,63,127,255,128,192,224,240,24
8,252,254,255
9350 DATA 0,60,126,126;126,126,6
0,0,82,37,146,85,170,93,170,93,4
2,28,8,8,8,8,8,8
9360 DATA 127,202,218,202,218,21
6,127,28,254,151,183,151,183,147
,254,56,255,153,153,255,153,153,
255,255
9370 DATA 24,60,24,60,90,24,36,1
02
9500 LET FN=0: LET Y=PEEK 52000:
 LET X=PEEK 52001: LET RM=3: LET
 PE=0: LET CC=0
9510  LET L$="(32*sp)": LET FO=1
7: LET FL=0: LET BMF=0
9520 LET BM=0: LET LI=0: LET SC=
0: LET DOF=0: LET KB=0
9950 RETURN
9989 STOP
9999 SAVE "KRAK 2012"
```





WRITE your own adventures with this splendid utility by Richard Bennet of Tarporley, Cheshire. OK, not big mega-adventures, multiple choice ones instead, of the 'Will you take the money or open the box?' variety. But a little imagination can give you a lot of fun.

Adventurer! contains full instructions and runs on a 48K Spectrum or Spectrum Plus. Richard's original version made extravagent use of FLASH, BRIGHT, and colour codes to make the text look more attractive — we suggest you add those elements to your own taste.

Save the program with SAVE "Adventurer" LINE 2. If you break out of it for any reason, restart with GOTO and not RUN, or you will lose your adventure.

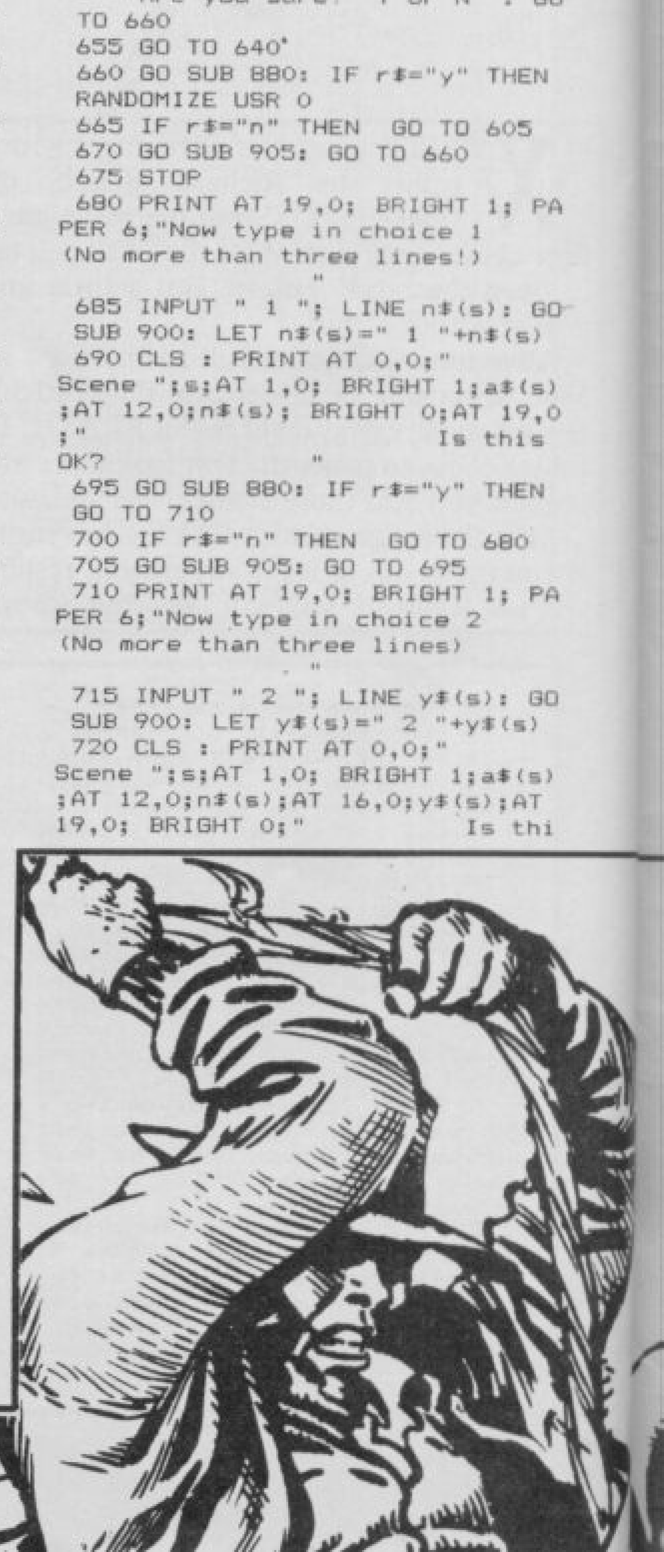
```
   2 REM ****Adventurer*****
   4 REM ***Utility program***
   6 REM ** R.Bennett 1985 **
  10 LET f=0: LET gl=0: LET sc=0
 : LET g=425
  15 CLS : PRINT AT 1,5;"   ADVE
NTURE WRITER "
  20 PRINT AT 3,0; BRIGHT 1;"  T
his program allows you to     wr
ite your own adventure game. "
  25 PRINT '"  The game presents
 the player   with a series of s
cenes and     asks him to choose
 what action  he would perform i
f he was in   the situation desc
ribed in the  scene."
  30 PRINT '"  He is given two c
hoices which  might lead to anot
her scene,    back where he star
ted or to     the end of the adv
enture."
  35 PRINT '"  You can describe
up to fifty   screens.  It is a
good idea to  make a note of the
 the number   given to each scen
e."
  40 PRINT #1;"    ARE YOU READY
 TO START? "
  45 GO SUB 880
  50 IF r$="y" THEN  GO TO 425
  55 GO TO 45
  60 LET cs=1: LET s=1: CLS
  65 PRINT AT 0,0;" To start off
 your adventure youmust type in
the first scene.    "''" Make sur
e your description is  no longer
 than ten lines."''" You might l
ike to include       some instruc
tions on this first screen."
  70 PRINT '"Finish each scene w
ith somethinglike - And what wil
l you do now?"
  75 PRINT '" You will be asked
to type in    the two choices aft
er you have  described each scen
e."
  80 PRINT '" An ENDSCREEN is on
e which does not give the player
 any choices.In other words it i
s a DEAD end or possibly the suc
cessful end!"
  85 IF e=1 THEN  GO TO 100
  90 PRINT AT 21,0; BRIGHT 1; PA
PER 5; FLASH 1;"Please describe
scene ...";s;"  "
  95 INPUT AT 1,0; LINE a$(s): G
O SUB 900
 100 CLS : PRINT AT 0,0; BRIGHT
1; PAPER 6;"Scene ";s: PRINT AT
1,0; BRIGHT 1;a$(s)
 105 PRINT AT 20,0; BRIGHT 1;"
Are you satisfied with this
entry for scene ";s;" y or n ?
"
 110 GO SUB 880
 115 IF r$="n" THEN  PRINT AT 20
,0;" (64 spaces)": GO TO 90
 120 IF r$<>"y" THEN  GO SUB 905
: GO TO 110
 125 IF e=0 AND s=1 THEN  GO SUB
 680: GO TO 235
 130 IF e=0 THEN  GO TO 190
 135 IF y(s)<>0 AND n(s)<>0 THEN
  GO TO 160
 140 PRINT AT 16,5;" This is an
ENDSCREEN ": FOR h=1 TO 5: GO SU
B 900: NEXT h
 145 PRINT AT 20,27; BRIGHT 1;"?
";AT 21,0; PAPER 5;"            Y
 or N ?              ": GO SUB 88
0: IF r$="y" THEN  GO TO 340
 150 IF r$<>"n" THEN  GO SUB 905
: GO TO 140
 155 GO SUB 680: GO TO 245
 160 PRINT AT 12,0; BRIGHT 1;n$(
s);AT 16,0;y$(s)
 165 PRINT AT 19,0;"
                 Are these choic
es OK?           "
 170 PRINT AT 21,0;"            (Y
 or N)           "
 175 GO SUB 880: IF r$="y" THEN
 GO TO 215
 180 IF r$<>"n". THEN  GO SUB 905
: GO TO 175
 185 LET f=1
 190 PRINT AT 19,0;"
                 ENDSCREEN or CH
OICES TO COME?  Press E or C
                 "
 195 GO SUB 880: IF r$="e" THEN
 LET y(s)=0: LET n(s)=0: GO TO 3
40
 200 IF f=1 THEN  LET f=0: GO SU
B 680: GO TO 215
 205 IF r$<>"c" THEN  GO SUB 905
: GO TO 195
 210 GO SUB 680: IF e=0 THEN  GO
 TO 235
 215 PRINT AT 19,0;" 1 takes you
 to screen ";n(s);AT 20,0;" 2 ta
kes you to screen ";y(s);AT 21,0
;" O for OK or C for change
"
 220 GO SUB 880: IF r$="o" THEN
 GO TO 340
 225 IF r$="c" THEN  GO TO 245
 230 GO SUB 905: GO TO 220
 235 PRINT AT 19,0;"
                 Does choice 1 le
ad to a New or  an Old scene (Pr
ess N or O)      "
 240 GO SUB 880: IF r$<>"o" THEN
  GO TO 275
 245 LET f=0: IF e=1 THEN  PRINT
 AT 19,0;" Destination for choic
e 1?      ": IF n(s)=0 OR n(s)<=
s THEN  LET f=1
 250 PRINT AT 20,0;" Which scene
?                "
 255 INPUT n(s): GO SUB 900: IF
n(s)>s AND e=0 THEN  PRINT AT 19
,0;"             This scene does
n't exist yet!": GO SUB 905: GO
TO 235
 260 IF e=1 AND f=1 AND n(s)>sc
THEN  LET sc=n(s): LET d(sc)=s:
GO TO 295
 265 IF e=1 THEN  GO TO 295
 270 GO TO 285
 275 IF r$<>"n" THEN  GO SUB 905
: GO TO 240
 280 LET sc=sc+1: LET n(s)=sc: L
ET d(sc)=s
 285 PRINT AT 19,0; PAPER 6;"Doe
s choice 2 lead to a New or  an
```

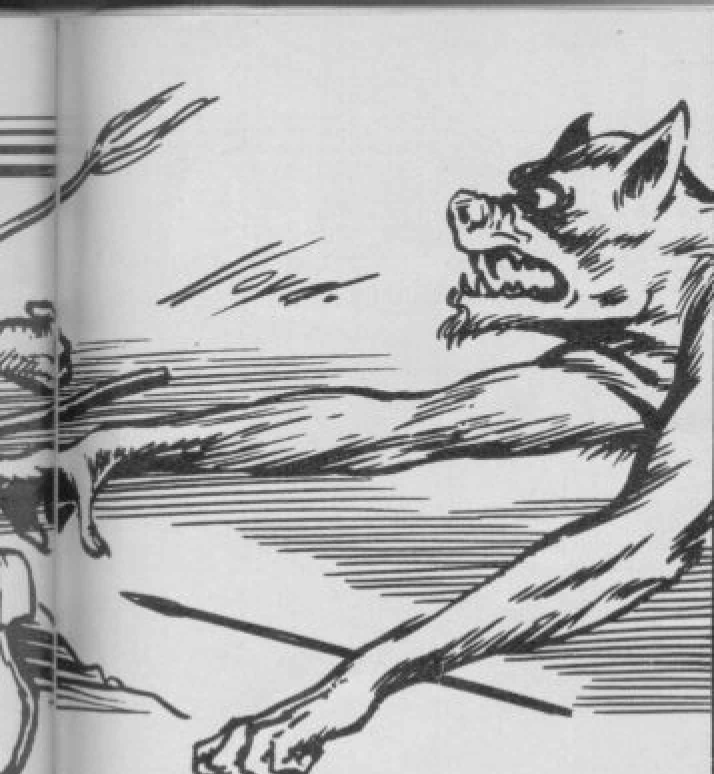
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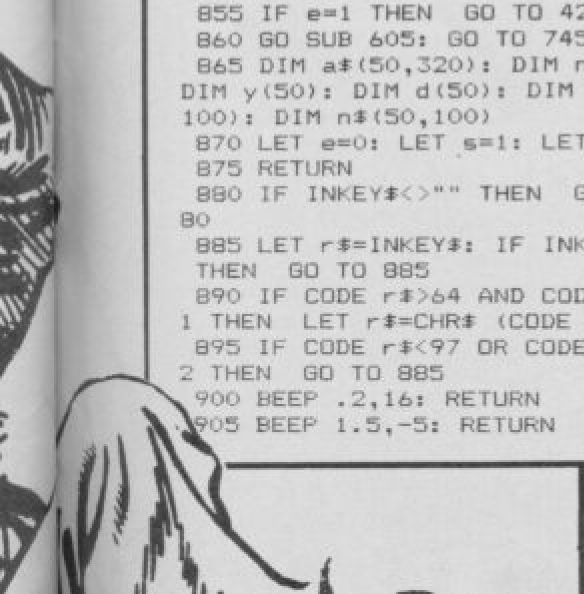
```
,Old scene or the Same scene  as
choice 1? (Press N , O or S) "
 290 GO SUB 880: IF r$<>"o" THEN
 GO TO 325
 295 LET f=0: IF e=1 THEN  PRINT
 AT 19,0;"Destination from choic
e 2?        ": IF y(s)=0 OR y(s)<=
s THEN  LET f=1
 300 IF e=0 THEN  PRINT AT 19,0;
"                              "
 305 PRINT AT 20,0;" Which scene
?                              "
 310 INPUT y(s): GO SUB 900: IF
y(s)>s AND e=0 THEN  PRINT AT 19
,0;"            This scene does
n't exist yet!": GO SUB 905: GO
TO 285
 315 IF e=1 AND f=1 AND y(s)>sc
THEN  LET sc=y(s): LET d(sc)=s
 320 GO TO 340
 325 IF r$="s" THEN  LET y(s)=n(
s): GO TO 340
 330 IF r$<>"n" THEN  GO SUB 905
: GO TO 290
 335 LET sc=sc+1: LET y(s)=sc: L
ET d(sc)=s
 340 IF y(s)<>s OR n(s)<>s THEN
GO TO 360
 345 PRINT AT 19,0; INK 6; PAPER
 0;"Both choices lead you back t
o  the scene you are on now! Yo
u'llkeep going round in circles!
 "
 350 IF e=0 THEN  LET e=1: LET g
l=1
 355  PRINT #1;AT 1,9; FLASH 1;"
 HIT ANY KEY ": PAUSE 0: GO TO 2
45
 360 IF gl=1 AND e=1 THEN  LET g
l=0: LET e=0
 365 IF s=scTHEN CLS :PRINT AT
 6,0;FLASH 1;"    Your adventure
is completed   ":PRINT AT 10,7;"
  HIT ANY KEY   ":PAUSE 0:GO SUB
900:GO TO 425
 370 LET s=s+1
 375 IF e=1 THEN  PRINT AT 19,0;
"              ": GO TO 405
 380 LET cs=s: CLS : PRINT AT 0,
0;"              Scene (";d(s);")
": PRINT  BRIGHT 1;AT 1,0;a$(d(s
))
 385 PRINT AT 12,0; BRIGHT 1;n$(
d(s))
 390 PRINT "     Response 1 leads
 to scene   ";n(d(s))
 395 PRINT AT 16,0; BRIGHT 1;y$(
d(s))
 400 PRINT AT 19,0;"
Response 2 leads to scene   ";y(d
(s))
 405 PRINT AT 21,0; BRIGHT 1;" M
enu or Next scene? (M or N)    "
 410 GO SUB 880: IF r$="n" THEN
 GO TO 85
 415 IF r$="m" THEN  GO TO 425
 420 GO SUB 905: GO TO 410
 425 CLS : PRINT AT 1,9; BRIGHT
1;"         MENU SCREEN "
 430 PRINT AT 3,2;"  Do you want
to :-"
 435 PRINT ''"     Test the advent
ure."
 440 PRINT '"    Edit the adventu
re."
 445 PRINT '"    Save your advent
ure on tape."
 450 PRINT '"    Continue writing
 your            adventure from wh
ere you left    off."
 455 PRINT '"    Write your own a
dventure        starting from scr
atch."
 460 PRINT '"    Finish all toget
her!"
 465 GO SUB 880
 470 IF r$="t" AND sc>0 THEN  LE
T e=1: GO TO 750
 475 IF r$="s" AND sc>0 THEN  GO
 TO 520
 480 IF r$="f" THEN  GO SUB 605:
 GO TO 425
 485 IF r$="c" AND sc>0 THEN  LE
T e=0: LET s=cs: GO TO 380
 490 IF r$="w" THEN  GO SUB 865:
 GO TO 60
 495 IF r$<>"e" OR sc=0 THEN  GO
 SUB 905: GO TO 465
 500 LET e=1: CLS : PRINT AT 5,1
1; BRIGHT 1; PAPER 6;" EDIT MODE "
 505 PRINT AT 9,3;" From which s
cene do you"''"      want to start
 editting?"
 510 INPUT s: IF s>sc OR s<=0 TH
EN  PRINT )1;AT 1,2;"This scene
does not exist!": GO SUB 905: GO
 TO 510
 515 GO TO 100
 520 CLS
 525 PRINT AT 1,5; BRIGHT 1;" SA
VE PROGRAM / FILE "
 530 PRINT AT 4,0;"What name do
you want to give    this adventur
e (10 letters max)"
 535 INPUT m$: GO SUB 900: IF LE
N m$>10 THEN  PRINT )1; FLASH 1;
 INK 2;"Name too long (Max 10 le
tters)": GO SUB 905: GO TO 535
 536 IF m$="" THEN  LET m$="Adve
nturer"
 540 PRINT AT 7,0;" Do you want
to :-                          "
 545 PRINT '" 1 Save the adventu
re so that it   can be altered o
r added to      later?"
 550 PRINT '" 2 Save the adventu
re so that it   is a game for pl
aying only."
 555 LET r$=INKEY$: IF r$="" THE
N  GO TO 555
 560 GO SUB 900: IF r$="1" THEN
 LET e=1: GO SUB 595: SAVE m$  L
INE 425: GO TO 575
 565 IF r$="2" THEN  LET e=0: GO
 SUB 595: SAVE m$ LINE 745: GO T
O 575
 570 GO SUB 905: GO TO 555
 575 PRINT AT 13,0;" REWIND the
tape and press PLAY  on the reco
rder.              (This check
s that your program  has been re
corded properly).   "
 580 PRINT '" If there is an err
or restart     program with - GOT
O g "
 585 VERIFY ""
 590 FOR k=1 TO 3: GO SUB 900: N
EXT k: GO TO 425
 595 PRINT AT 18,7; FLASH 1;" SA
VING ";m$
 600 RETURN
 605 CLS
 610 PRINT AT 4,0;"    Are you su
re you want to"''"    finish now?
 Y or N ?      "
 615 GO SUB 880
 620 IF r$<>"y" THEN  RETURN
 625 CLS : PRINT AT 4,0;" Do you
want to :-"
 630 PRINT '"   1 Start again"
 635 PRINT '"   2 Finish using th
is program."
 640 IF INKEY$="1" AND e=1 THEN
GO TO g
 645 IF INKEY$="1" AND e=0 THEN
GO TO 745
 650 IF INKEY$="2" THEN  PRINT '
'''" Are you sure?  Y or N ": GO
 TO 660
 655 GO TO 640
 660 GO SUB 880: IF r$="y" THEN
RANDOMIZE USR 0
 665 IF r$="n" THEN  GO TO 605
 670 GO SUB 905: GO TO 660
 675 STOP
 680 PRINT AT 19,0; BRIGHT 1; PA
PER 6;"Now type in choice 1
(No more than three lines!)
                    "
 685 INPUT " 1 "; LINE n$(s): GO
SUB 900: LET n$(s)=" 1 "+n$(s)
 690 CLS : PRINT AT 0,0;"
Scene ";s;AT 1,0; BRIGHT 1;a$(s)
;AT 12,0;n$(s); BRIGHT 0;AT 19,0
;"                      Is this
OK?                  "
 695 GO SUB 880: IF r$="y" THEN
GO TO 710
 700 IF r$="n" THEN  GO TO 680
 705 GO SUB 905: GO TO 695
 710 PRINT AT 19,0; BRIGHT 1; PA
PER 6;"Now type in choice 2
(No more than three lines)
                 "
 715 INPUT " 2 "; LINE y$(s): GO
SUB 900: LET y$(s)=" 2 "+y$(s)
 720 CLS : PRINT AT 0,0;"
Scene ";s;AT 1,0; BRIGHT 1;a$(s)
;AT 12,0;n$(s);AT 16,0;y$(s);AT
19,0; BRIGHT 0;"         Is thi
```

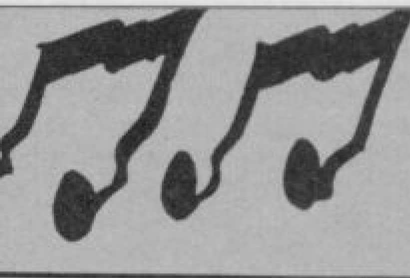






```
s OK?              "
 725 GO SUB 880: IF r$="y" THEN
 GO TO 740
 730 IF r$="n" THEN  GO TO 710
 735 GO SUB 905: GO TO 725
 740 RETURN
 745 REM ****G a m e *******
 750 LET s=1
 755 CLS
 760 IF e=1 THEN  PRINT AT 0,0;
PAPER 6;"TESTING MODE - Scene ";
s
 765 PRINT AT 1,0; BRIGHT 1;a$(s
)
 770 LPRINT a$(s)
 775 IF n(s)>0 AND y(s)>0 THEN
PRINT  BRIGHT 1;AT 12,0;n$(s);AT
 16,0;y$(s)
 780 IF e=1 THEN  PRINT )1;AT 1,
7; BRIGHT 1;"Press 9 to escape"
 785 IF y(s)=0 AND n(s)=0 THEN
GO TO 820
 787 PRINT AT 20,3; BRIGHT 1;" M
ake your choice 1 or 2 "
 790 LET r$=INKEY$: IF r$="" THE
N  GO TO 790
 795 GO SUB 900
 800 IF e=1 AND r$="9" THEN  GO
TO 425
 805 IF r$="1" THEN  LPRINT "You
 chose -": LPRINT n$(s): LET s=n
(s): GO TO 755
 810 IF r$="2" THEN  LPRINT "You
 chose -": LPRINT y$(s): LET s=y
(s): GO TO 755
 815 GO SUB 905: GO TO 790
 820 PRINT AT 15,0;"          ADV
ENTURE OVER        "
 825 PRINT '" Would you like to
try again?"''"  Press Y or N "
 830 LET r$=INKEY$: IF r$="" THE
N  GO TO 830
 835 IF r$="y" THEN  GO SUB 900:
 GO TO 750
 840 IF e=1 AND r$="9" THEN  GO
SUB 900: GO TO 425
 845 IF r$<>"n" THEN  GO SUB 905
: GO TO 830
 850 IF e=1 AND r$="9" THEN  GO
SUB 900: GO TO 425
 855 IF e=1 THEN  GO TO 425
 860 GO SUB 605: GO TO 745
 865 DIM a$(50,320): DIM n(50):
DIM y(50): DIM d(50): DIM y$(50,
100): DIM n$(50,100)
 870 LET e=0: LET s=1: LET sc=1
 875 RETURN
 880 IF INKEY$<>"" THEN  GO TO 8
80
 885 LET r$=INKEY$: IF INKEY$=""
 THEN  GO TO 885
 890 IF CODE r$>64 AND CODE r$<9
1 THEN  LET r$=CHR$ (CODE r$+32)
 895 IF CODE r$<97 OR CODE r$>12
2 THEN  GO TO 885
 900 BEEP .2,16: RETURN
 905 BEEP 1.5,-5: RETURN
```





THIS IS really silly. You've only yourself to blame if you type it in. We loved it, anyway.

There's not much more to say about **Harmonic Horror**, except, in the immortal words of the author James Beauchamp from Allestree, Derbyshire, Ole!

Oh yes, it runs on any Spectrum.

```
   5 GO TO 50
  10 DATA 19,16,18,15,19,-12,16,
12,15,11,16,-5,12,7,11,7,12,-12,
7,4,7,4,7,-5,4,0,5,2
  15 DATA 7,-12,9,5,11,2,12,4,14
,-5,16,7,17,-10,14,9,14,7,14,-5
  20 DATA 17,14,16,13,17,-10,14,
11,13,10,14,-5,11,7,10,6,11,-10,
7,2,7,-1,7,-5,19,11,18,10
  25 DATA 19,-10,21,17,19,16,17,
-5,16,11,14,5,12,-12,12,-8,12,-5
,12,0
  30 DATA 14,9,14,7,-6,14,9,6,9,
4,-10,9,12,4,12,6,-5,12,11,7,11,
-10,11,-5
  35 DATA 14,11,14,7,14,-6,9,6,9
,4,9,-10,12,6,9,2,11,-5,9,2,7,2,
7,-1
  40 DATA 14,9,14,7,14,-6,9,6,9,
4,9,-10,12,6,14,6,12,-5,11,7,11,
-10,11,-13
  45 DATA 14,9,14,7,14,-12,16,7,
14,7,12,-6,11,7,9,0,7,-5,7,-1,7,
2,7,5
  50 PRINT AT 10,3;"      PRESS AN
Y KEY TO PLAY"
  55 PAUSE 0
  60 INK INT (RND*6)+1: FLASH 1:
 CLS
  65 PRINT AT 10,8; BRIGHT 1; IN
K 0;"!!! OLEY !!!"
  70 LET co=96: LET pl=0
  90 FOR n=1 TO co
 100 READ a,b
 105 FOR c=1 TO 3
 110 BEEP .02,a: BEEP .02,b
 115 NEXT c
 120 NEXT n
 125 LET pl=pl+1
 130 IF pl=2 THEN  FLASH 0: INK
0: RUN
 140 RESTORE : LET co=48: GO TO
90
```



ARE YOU STUNTED? Find out the awful truth with **Walk Tall** by A G Griffiths of Ystradgynlais. If you're aged between two and seventeen this program, which runs on any Spectrum, is for you. It should tell you how tall you can expect to grow — absolutely vital information for potential basketball players or would-be policemen.

The program requires you to enter your present height, age and sex, then shatters your illusions.




```
  10 REM HOWTALLAGG1985
  20 PRINT  PAPER 5; INK 1;AT 0,
4;" HOW TALL WILL YOU BE ? "
  30 PRINT '"TO WORK OUT YOUR FI
NAL HEIGHT I WILL NEED TO KNOW Y
OUR AGE, YOURSEX AND YOUR PRESEN
T HEIGHT."
  40 PRINT ''"FIRSTLY WHAT IS YO
UR AGE ?"
  50 PRINT '"PLEASE ENTER THE YE
ARS ONLY.."
  60 INPUT a
  70 BEEP .05,20
  80 IF a<2 OR a>17 THEN  GO TO
60
  90 PRINT AT 9,30;a
 100 PAUSE 50
 110 PRINT '"NOW THE MONTHS PLEA
SE.."
 120 INPUT d
 130 BEEP .05,20
 140 IF d<0 OR d>=12 THEN  GO TO
120
 150 PRINT AT 11,24;d
 160 LET e=a+(d/12)
 170 PAUSE 50
 180 PRINT '"NOW ENTER ""g"" IF
YOU'RE A       GIRL OR ""b"" IF
YOU'RE A BOY.."
 190 INPUT s$
 200 BEEP .05,20
 210 IF s$<>"g" AND s$<>"b" THEN
 GO TO 190
 220 PRINT AT 14,30;s$
 230 IF s$="b" THEN  GO SUB 390
 240 IF s$="g" THEN  GO SUB 470
 250 PAUSE 50
 260 PRINT '"LASTLY PLEASE ENTER
YOUR PRESENTHEIGHT IN INCHES.."
 270 INPUT h
 280 BEEP .05,20
 290 PRINT AT 17,19;h
 300 LET y=(m*e)+c
 310 LET fh=h*100/y
 320 LET fh=(INT ((fh+.05)*10))/
10
 330 LET ft=INT (fh/12): LET in=
fh-(ft*12)
 340 PRINT '"  YOUR FINAL HEIGHT
WILL BE .."
 350 PAUSE 50: FOR z=1 TO 10: BE
EP .02,20: NEXT z
 360 PRINT AT 21,9;ft;"  FT   ";i
n;AT 21,20;" IN        "
 365 PAUSE 100
 370 PRINT #1; PAPER 5; INK 7;"
PRESS ANY KEY TO RERUN PROGRAM "
 380 PAUSE 0: CLS : GO TO 20
 390 IF a=2 OR a=3 THEN  LET m=4
.26: LET c=40.99
 400 IF a>3 AND a<7 THEN  LET m=
3.64: LET c=43.48
 410 IF a>6 AND a<13 THEN  LET m
=3.05: LET c=47.59
 420 IF a=13 OR a=14 THEN  LET m
=4.4: LET c=30.03
 430 IF a=15 THEN  LET m=2.2: LE
T c=63.1
 440 IF a=16 THEN  LET m=1: LET
c=82.3
 450 IF a=17 THEN  LET m=.5: LET
c=90.8
 460 RETURN
 470 IF a=2 OR a=3 THEN  LET m=4
.53: LET c=43.59
 480 IF a=4 OR a=5 THEN  LET m=4
.25: LET c=44.85
 490 IF a>5 AND a<11 THEN  LET m
=3.57: LET c=48.88
 500 IF a=11 THEN  LET m=4.5: LE
T c=38.9
 510 IF a=12 THEN  LET m=3.6: LE
T c=49.7
 520 IF a=13 THEN  LET m=1.8: LE
T c=73.1
 530 IF a=14 THEN  LET m=.8: LET
c=87.1
 540 IF a=15 THEN  LET m=.5: LET
c=91.6
 550 IF a=16 THEN  LET m=.4: LET
c=93.2
 560 IF a=17 THEN  LET m=0: LET
c=100
 570 RETURN
```

New Year's resolutions

SINCE we're starting a new year, it seems a good opportunity to make some suggestions for submitting programs and getting our own listings to run properly.

If you're intending to send us your programs, write your name and address on the cassette or microdrive cartridge as well as on your letter. Try not to use control codes for colour and flash if you can help it as it's difficult for inexperienced users to type them in — although we can and do publish such programs when necessary.

If you're including machine code, write a short Basic program which loads in the code from DATA statements — again, much easier for beginners to type in.

Try to find original ideas for programs — you're unlikely to succeed if you send in **Mastermind, Fruit Machine** or **Bomber** programs. We've seen hundreds already. QL programs are more than welcome, but we've reluctantly stopped publishing ZX81 material.

When you type in programs, pay particular attention to graphics and DATA statements. There are three error reports which confuse beginners, and those nearly always refer to DATA — they are E: Out of DATA, C: Nonsense in Basic, and B: Integer out of range. The first means there are not enough items in the DATA statements.

The second nearly always means the computer is trying read a number into a string ($) variable or a string into a numeric variable. That usually happens when there are too many, or not enough, items in a particular set of DATA and the computer gets out of step when reading it.

The third example frequently happens when POKEing in machine code and means the number POKEd in is bigger than 255 or smaller than zero. Leaving out a comma can often cause such a result.

In all those cases the error is in the DATA statements rather than the line number specified in the error report. You can, however, narrow down the area by printing the values of all variables as soon as you get an error. In a line such as 100 FOR x=1 TO 100: READ b: POKE 3200+x,b: NEXT x entering PRINT x will tell you how far through the loop the machine got before it encountered an error. PRINT b tells you what number the computer has just taken from the bugged statement. Taking both results together should enable you to work out exactly where the error ocurred in the DATA statements.

We very occasionally make mistakes. In the September issue, there's an error in **Dead Eyed Dick,** in Listing 2. Change line 70 to read SAVE "dcode" CODE 64500,120 and all should be well.

On the **Dancing Ogre** program in the *Sinclair User Annual*, we swapped listings one and two in the instructions. You can also change line 3040 to read IF A(X,2) smaller than sign 0 THEN GO SUB 3200 and give the characters a chance to smash up the tavern.

THE HOST IN THE MACHINE



M.U.D

Multi User Dungeon

"MUD leaves conventional adventures for dead" (PCW)
"MUD is the addictive game" (Telelink)
"10 out of 10 on all counts" (Which Micro)

It's here - The most talked about computer game in the world. M.U.D is more than Adventure, more than Communication, more than a new way of using your Micro. It's fun, it's addictive, it's challenging, and, if you have a modem, a computer and a phone-line, it's all yours!



Hundreds of people are already playing. This is your chance to join them.

Call the MUD-Line now 01-608 1173

Budget banquet

Are the cheapest games in town also the tastiest? Chris Bourne gets stuck into a plateful of Mastertronic. . .



"GET THEM to take you out to dinner," said the editor. "And make sure they pay for it." So here we are, sitting round a table at the Ristorante Venezia, wondering why the head waiter's shoved us in a little corner at the back, well out of the way of other diners. What's on the menu? Mastertronic — well-grilled and served flambé at the table while you watch.

The tape-recorder sits in the centre of the pristine white tablecloth. Five Mastertronic people look at it nervously. The spools start to roll . . .

Mastertronic is the budget software house to beat them all. It started operating about 18 months ago with a range of games, each costing £1.99. Reactions were hostile from virtually everybody. Magazines said the games were no good. Other software houses said prices like that would kill the industry. The founders of Mastertronic were portrayed as cynical businessmen, unloading cheap rubbish into newsagents and supermarkets to clean up fast.

The punters thought differently. Two quid is about the average amount of weekly pocket money doled out by British parents. You have to save up to buy games by Ultimate or Melbourne House. Mastertronic offers a quick fix at an affordable price.

Since those beginnings, Mastertronic has brought out 146 different games — if you count the conversions. That's sales of two and a half million worldwide. Figures like that are what other software houses dream about. They're why Mastertronic can afford to sell games as cheaply as they do. Oh, and Mastertronic is also the only British software house to have a firm sales base in the USA. Nearly everybody else who tried lost their shirt on the deal.

The waiter arrives, and John Maxwell, who controls the diverse groups of programmers working for Mastertronic, asks if there's anything special on the menu. The waiter, unable to understand him, departs in panic. "It is truly Italian here," says John, with satisfaction.

After a brief debate on restaurants with ethnic pretensions, the conversation turns to **Spellbound,** Mastertronic's first *Sinclair User* Classic. David Jones, who wrote the game, and also another 'tronic hit, **Finders Keepers,** is chuffed. "I got an Amstrad Accolade for **Finders Keepers,** but this is very nice," he says. "I'm trying to do adventure games in an arcade environment. There's a lot more to adventures than typing in strings of text. When I had a Tandy system I used to enjoy Scott Adams' adventures, but it wasn't the same when you had to use the Spectrum keyboard."

While David is explaining his attitudes to **Spellbound,** the rest of the party sort out the menu. Most decide the fillet steak with brandy sauce sounds about right, though PR Manager, Colin Johnson, ostentatiously fancies Eggs Florentine and "the ontercoatay wiv green peppercorns." Well,



that's what it sounds like on the tape.

David Jones continues his explanation against the wall of noise which greets the arrival of the wine. "I was working for a very small company which was going down the drain because the wholesalers took no notice of us. Mastertronic seemed to offer the best deal — that was about a month prior to releasing **Finders Keepers.**"

Mastertronic paid out £300,000 in royalties to their authors in the first year of operation. Although programmers can't expect much out of the £1.99 tag on a single game, the volume of sales makes up for that. The company has offices in the US, Germany, Italy, France and Belgium, as well as a distribution outlet in Australia. "At the Las Vegas show we have one of the biggest stands of any software company," says Colin, proudly.

David hints that he'd like to go to Vegas for a "nice little break." "You're too busy," says John, severely. The waiter asks David if he wants red or white wine. "Yes please," says David. That is the sort of mental attitude that makes him such an individual programmer.

John waves his glass in the air, painting expansive pictures of a Mastertronic Christmas. "We think **Spellbound** is going to be a number one," he says, "and there's going to be a helluva lot more people buying software this Christmas."

Mastertronic's target audience is identified as 8-15 year olds, with the main market in the 12-14 age bracket. But as John points out, "We try to cater for the whole market. It goes up to 60 years old."

That leads to the first assault of the evening on *Sinclair User*. "It strikes me," says Colin, suddenly struck, "that magazines talk about 'a Mastertronic game is . . .' But the games are all totally different." It's true of course — there are so many different programmers that it's ridiculous to identify a single style. But surely Mastertronic knew that was likely to happen when the budget range was launched?

"Of course we did," says John, in a dangerously gentle voice, as the background muzak changes from Indian flutes to Fleetwood Mac's *Albatross*. "And at the beginning we needed to build a range quickly."

He's conceding that the first dozen or so games were not really very good. But the company is convinced that current products are much more advanced, and of as high a quality as anything at the £7 level, if not better . . . and that's certainly the intention with the MAD series, at £2.99.

Sinclair User has certainly panned Mastertronic products in the past. How does a company react to such criticism? Some companies get extremely stroppy and threaten to withdraw all their advertising — though few actually go through with their threats. "When we saw your review of **Action Biker**," says Colin, "our immediate reaction was to go round and beat you up. That's the mark of true professionals." Later, he says the Spectrum version looks pretty rough if you compare it with the Commodore 64 version, "but taken on its own it's a credible game."

Soup and other goodies arrive. As invariably happens, one of the dishes remains unclaimed. Colin suggests running the tape back to see if anybody ordered it . . .

It's hard to conduct interviews with a mouth full of onion soup, so the tape is switched off for a short while, prompting a flood of dirty jokes and scandalous anecdotes now we're 'off the record'. What isn't apparent in Hit Squad articles is the amount of time spent listening to the interviewees discussing the magazine. John has particularly strong ideas.

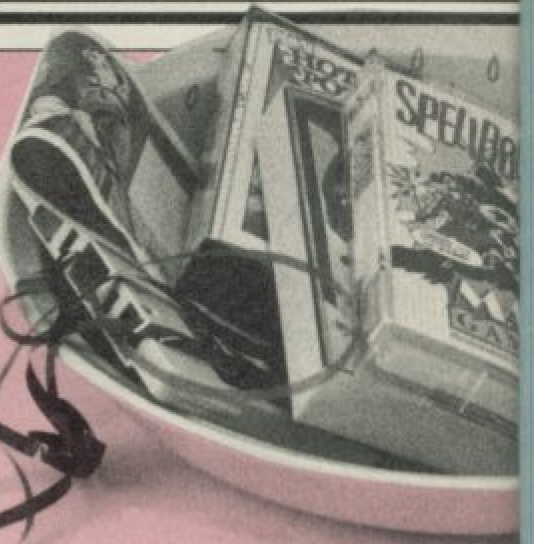
"Why don't some magazines do more in printing serious programming tips?" For some kids it's their one and only ambition in life — to be a programmer. It's something only magazines can do."

David agrees. "That's where I learned machine code," he says, "from magazines. *Your Spectrum* has Toni Baker, and you've got Andrew Hewson. Even if people don't understand it, it's nice because they can aspire to it."

"Like the *Financial Times*," says Colin, and we all splutter in our soup. The muzak abruptly changes to selections of Mantovani.

Having grabbed our attention, Colin proceeds to expound one of his pet hobby-horses. "As a *Dungeons and Dragons* player," he says, "I really can't understand why it can't be done on a personal computer." We discuss the problems of simulating the

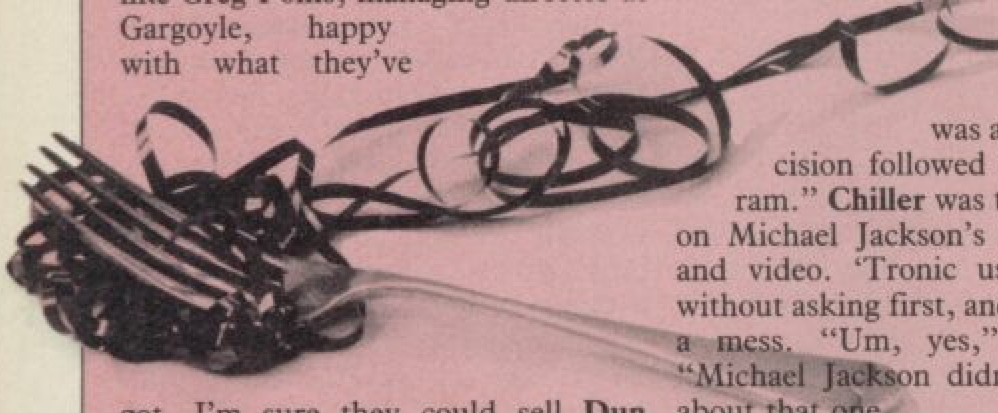
continued on page 114



continued from page 113

treacherous mind of a *D&D* referee, until John trumps us all with, "Wait until you see **Magic Quest.** It will be on the Spectrum in January — that's an attempt to do it."

The discussion lurches into an analysis of various fantasy adventures. Gargoyle's Cuchullain series is universally admired. "But here we are selling millions," says John, "genuine millions, worldwide, and you have people like Greg Follis, managing director at Gargoyle, happy with what they've



got. I'm sure they could sell **Dun Darach** in America. Of course, with some of the rip-offs in the past, they've got cause to worry about the dangers. And that's a very sad thing."

So sad, that Mantovani yields to Richard Claydermann playing an extremely florid version of *My Way.* "That's a bit over the top, isn't it?" asks Colin. "I think it's rather good," says John, on the defensive for once.

After taking some photographs to demonstrate that 'tronic can afford a soup course, and enduring an earful from David about how magazines should credit the authors of games much more than they do, and after Claydermann gives up on Sinatra to regale us with *Spanish Eyes,* John explains that the difference between Ocean and Mastertronic is that Mastertronic "listens to the authors." Colin agrees. "There's no way the marketing department sits down and says 'we want a game with this and this and this . . .' "

Shock! Horror!

Alan Sharman makes his first move in the conversation. He's one of the big four at Mastertronic — there's Frank Herman and Martin Alper, Alan and Terry Medwhite. They're the heavy guys with the suits and two million years of experience between them. To emphasise the fact, Alan speaks extremely quietly.

"It happens sometimes, Colin," he says. "It happened with **Chiller.** That was a marketing decision followed up by a program." **Chiller** was the game based on Michael Jackson's *Thriller* album and video. 'Tronic used the music without asking first, and got in a bit of a mess. "Um, yes," jokes Colin. "Michael Jackson didn't know a lot about that one."

Time now to bring in the one voice not yet heard — Alison, who runs the Mastertronic Club. The club has it's own newsletter, and members get a free game. She also deals with enquiries about the games. "There's an awful lot of kids," she says. "They write in with lists and lists of our games that they have. It's like a collection. And they write in with cheques from their mums and dads, which aren't signed. I never intended to get into computers. I wanted to be a trainee contact lens technician."

It turns out David wanted to be a quantity surveyor, Alan was a chartered surveyor, Colin did something mysterious in the music business, and John had a video company. Only John admits to ever having wanted to work with computers.

At long last the steaks arrive. They are massive — shaped like a cricket ball with a slab of pate on the top. "It looks like a huge beefburger," says Alison, awed. "Well, it's not from BT," says Colin. "I can assure you of that." What?

Someone isn't quite sure if their chicken is what they ordered. Colin takes control. "No. Chickens have legs and feet. We know a chicken when we see one." The waiter is clearly terrified. "We rang up beforehand," says Colin, "to see if they'd serve KP Skips with the meal." Skips are the obnoxious snack which promotes Clumsy Colin of **Action Biker** fame. "They showed us how they were made. It's revolting. You know those little plastic chips you get in packing materials . . . they're exactly the same with added flavouring."

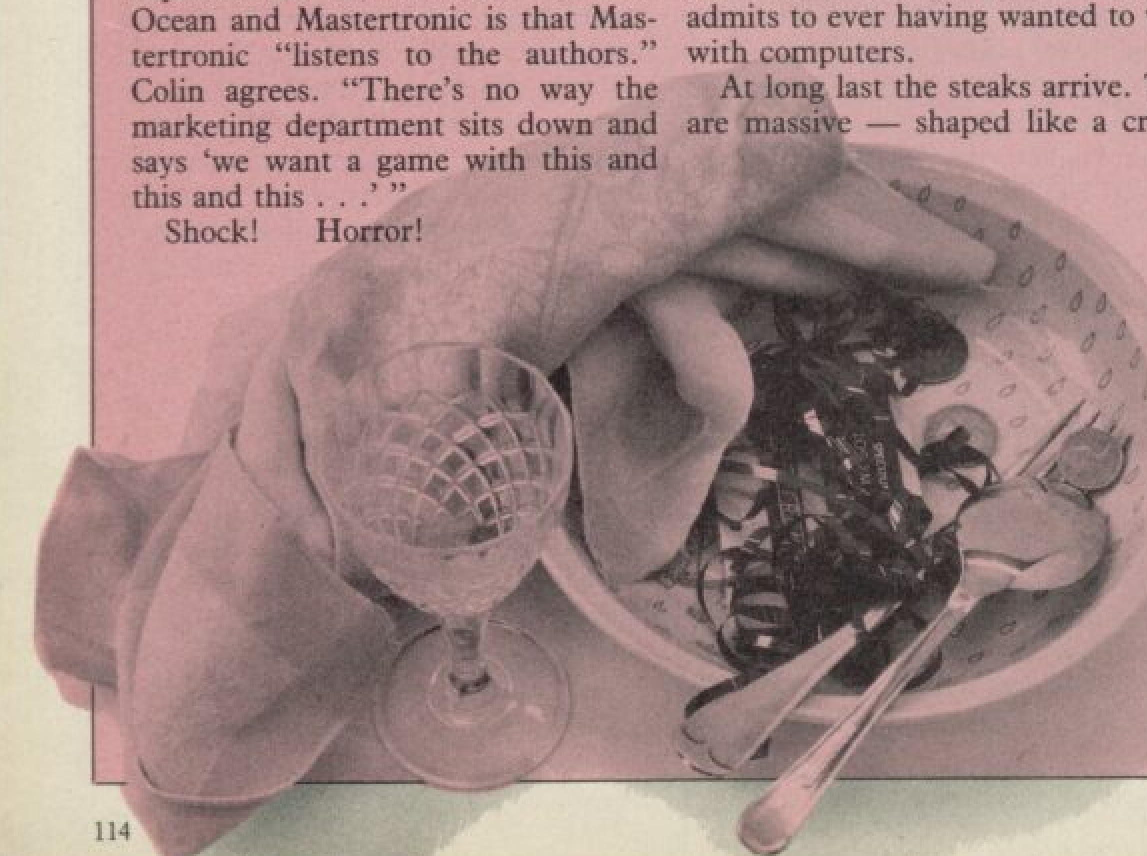
John tells a story about a beautiful woman he met in Sorrento who had five million brothers. David, meanwhile, is explaining to us how he's going to explain to his girlfriend why he's going to be late back home.

"Why can't you produce an Amiga with four Z80 chips?" asks John — one of those wonderfully loony concepts which crops up when people are feeling well fed and watered. "Because I've got a mouth full of food," says David. It turns out that David nearly got involved with the ill-fated Prism. He was asked to write the software to control Topo, the infamous robot that didn't work. "I sent them a quote for the work but they never replied."

Never insult programmers. David got his revenge in **Spellbound** — out of the 50 objects, only one is utterly useless. The Prism.

The gossip gets hotter and the jokes raunchier. We'll draw a veil over the final act, with the last portion of profiterol and the cold zabaglione, and what Alison did with her orange sorbet.

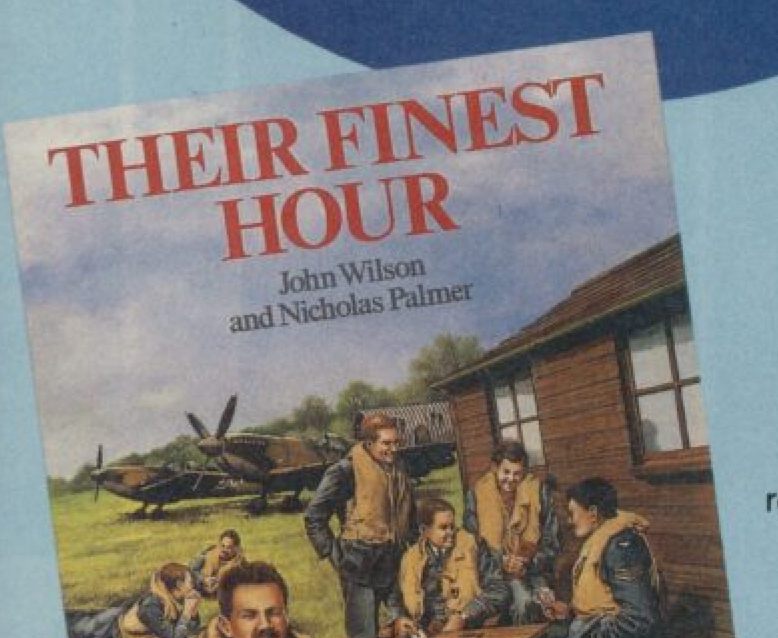
The final cost: £113, not including tips. Mastertronic foots the bill. Flash they may be — cheap they're not.





"What's that picture supposed to be?"

"Er, eye-catching, that's what it's supposed to be."



"But it doesn't tell you anything about the great new icon-driven Battle of Britain strategy game, THEIR FINEST HOUR, from Century Communications, publishers of THE FOURTH PROTOCOL. I mean, what's it got to do with using your skill and judgement to stem the almost inexorable advance of Goering's Luftwaffe? Does it tell you anything about the deployment of Spitfire squadrons and ack-ack batteries, the allocation of fresh pilots, or keeping in touch with the weather forecast? How about the daily reports you have to make to Winston Churchill, and the pulse rate feature where you control the speed of the game?

"Well, er ..."

"Right, we'd better hurry up and design a new ad before the game hits the streets on 9 December, and people start writing to and phoning Century Communications at 62-65 Chandos Place, London WC2N 4NW, Tel: 01-240 3411 and asking for copies."

THEIR FINEST HOUR

48K Spectrum

Their Finest Hour — a great strategy game simulating The Battle of Britain, by Nicholas Palmer and John Wilson. Published by Century Communications for the 48K Spectrum at £9.95.

FIRST

THERE'S NEVER BEEN A BETTE

★★★★★★★★★★★★★★★

U.S. GOLD
All American Software

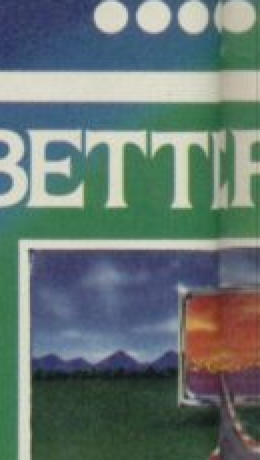
Until now, this fantastic range of American games has been available only to the fortunate owners of Atari and Commodore computers. Now, thanks to U.S. Gold, you and your Spectrum/ Spectrum + can team up with some of the best games available today, from such famous-name American software houses as SEGA,



WINTER GAMES



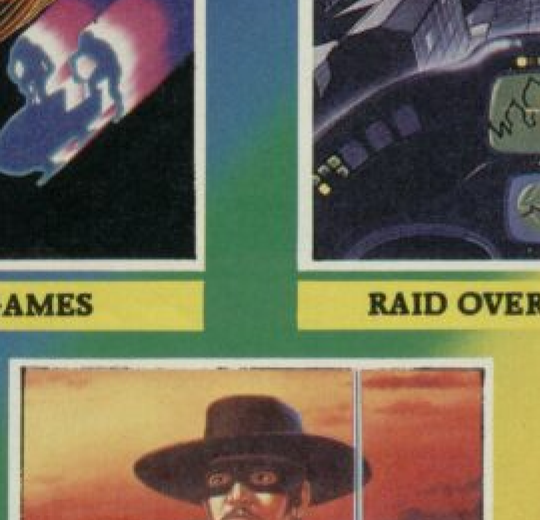
RAID OVER MOSCOW



POLE POSIT



TAPPER



ZORRO



GOONIES

The Ultimate in American Software

Surfchamp



IF YOU'RE a highway surfer — all mouth and no action — you will probably feel sea sick in this simulation of boards and breakers.

The package includes a plastic surf board, or paddle, which, you may say is the height of hype. You would be wrong, however, as the board is intrinsic to game play. Turn the Spectrum keyboard around 90 degrees and centre the board on the 'G' key. Just press down on the relevant part of the board and your computer counterpart will make the same move but in open sea, and hopefully on a breaker.

Spectrum Plus owners will find the paddle difficult to use as the studs under the board depress more than one key, producing inaccurate results.

Before you make your way out to sea in search of surf you must take note of weather conditions and water temperature. Once you've worked out the weather you can choose your equipment from two menus which come on a help sheet. You must make reference to that before pressing any keys.

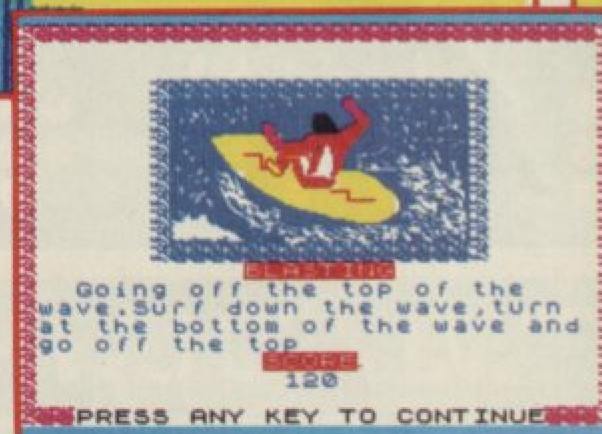
When you have entered all the data you can trip off to the beach with your board and attempt to make your way into the briny without getting drowned. The board is steered left and right with the keys on either side of the plastic paddle.

When you are far enough out to sea you can turn and stand, sit or lie on the board, waiting for a wave. As the crest of the breaker looms press the '2' key and prepare to surf. If you are at the right angle the display will change showing an incredible full frontal of a surfer riding a wave. Pull back on the board or you will wipe out or have to bomb out. The game is full of surfi-speak.

The game is a true simulator — you can practice in fairly calm conditions or try for a high score on the ranking table. The only thing the package does not supply is 50 million tons of salt water.

Surfchamp won't do much for your style if you're a real surfer, but it gives the feel of the sport. I'm not sure that the plastic control paddle is as indispensable as New Concepts claims — I was able to surf quite happily without it — but it is an incentive which players are bound to appreciate.

John Gilbert



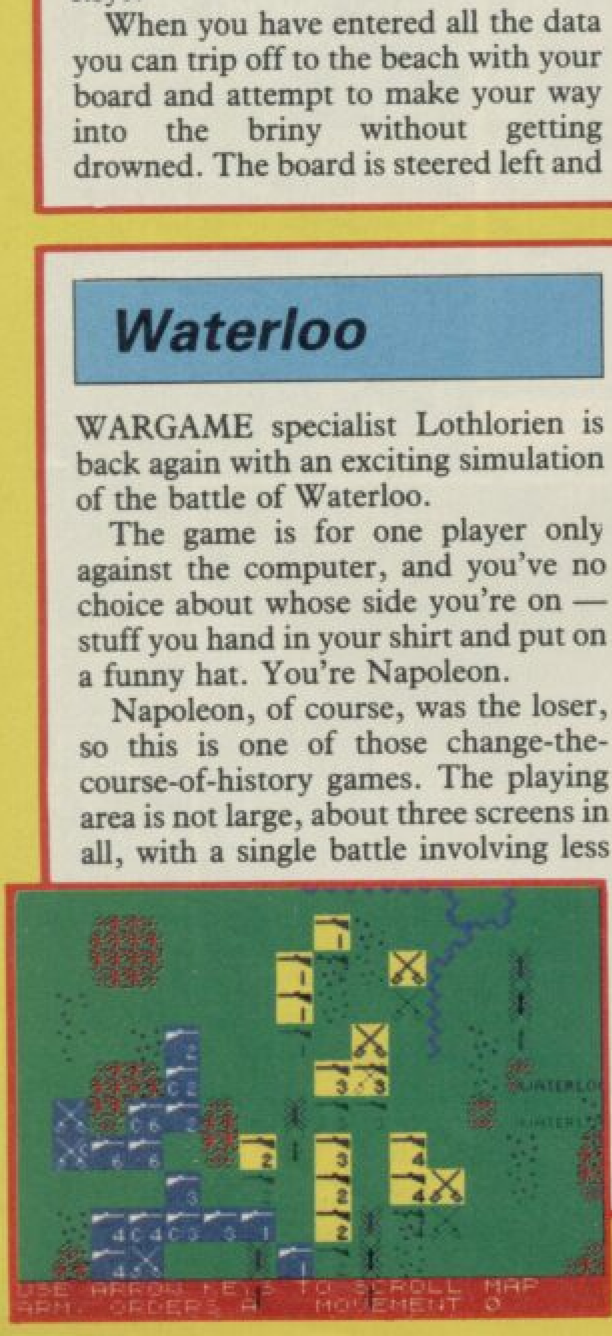
Publisher New Concepts
Price £12.00 **Memory** 48K
★★★★★

Waterloo

WARGAME specialist Lothlorien is back again with an exciting simulation of the battle of Waterloo.

The game is for one player only against the computer, and you've no choice about whose side you're on — stuff you hand in your shirt and put on a funny hat. You're Napoleon.

Napoleon, of course, was the loser, so this is one of those change-the-course-of-history games. The playing area is not large, about three screens in all, with a single battle involving less than 100,000 troops.



The map is unsophisticated but scrolls smoothly and is very clear, as are the units, cavalry and infantry. Artillery does not enter into the game.

As Napoleon, you must launch an effective assault on Wellington's strong defensive lines, occupying two chateaux and a series of ridges. Terrain features vary in their effect on movement and combat, and the essence of the game is to maintain maximum manoeuvrability.

An excellent feature of the game is the option to delegate command of the six French army corps to their individual commanders.

In such situations a commander will take advantage of particular details of his position, and may advise against your orders. Alternatively, you can move each unit individually. The option means that beginners can play swiftly and simply, commanding only a few units, and sending reinforcements when required, taking fuller control when they understand the game better.

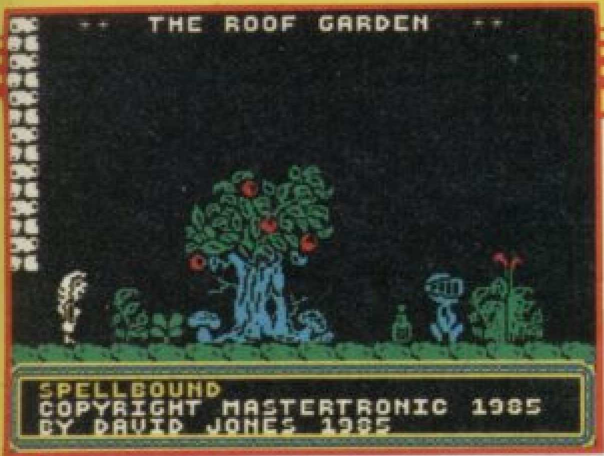
At the learning level the game is reasonably easy to win, while we also scored one easy victory at the standard level. At the highest level the English get better morale and higher strength units, making victory very difficult.

Four different strategies have been programmed into the game, so you cannot rely on the same tactics twice, and our victory was probably lucky as Wellington seemed to have little stomach for a fight on the day. In the rematch, Napoleon was slaughtered.

Waterloo plays fast and a game lasts no more than an hour or so. While wargame fanatics may find it too simple for purist tastes, it's nevertheless lots of fun, fairly realistic in its results, and ideal for inexperienced wargamers.

Chris Bourne

Publisher Lothlorien
Price £9.95 **Memory** 48K
★★★★



Spellbound

MAGIC is in the air as the hero of **Finders Keepers** reappears to help his tutor Gimbal the wizard.

The old grump has been using spells to spice up his rice but, because of an error in translation, a spiel goes wrong. Gimbal is whisked off to the Castle of Karn, dragging seven other reluctants with him. Before his power is lost he manages to send a message to you, the Magic Knight, and you are off on another mission of mercy.

The knight is moved around the castle with joystick or keyboard in a similar way to the hero in Ultimate's **Underwurlde.** A series of easy to use command windows can be accessed to pick up or examine objects and order other characters around. The menus are easy to use and beat the old method of typing commands, word for word, onto the keyboard.

If you are using a joystick you can slide a pointing finger icon up and down the list of options and press the fire button to select. The game movement keys will do the same job if you don't have a joystick.

Movement between the five floors, basement and roof of the castle is achieved by teleport pad or lift. The teleport can be placed anywhere and, as long as you have the key, you can zap back to the pad at any time.



The lift should call at all floors, including an exotic roof garden with weirdly shaped trees and big colourful blooms. Unfortunately, rather like Dr Who's police box, it malfunctions at the start of the game and will not go to the basement or ground floor. You have to solve a riddle to get it working again.



Many of the objects you pick up contain helpful riddles. Most solutions are found by matching objects with other characters.

The characters within the castle are not particularly intelligent but you must keep them happy and fed. If you help them they will help you.

Spellbound is the first in a series of graphic adventures from Mastertronic, and if the rest are as good as this one the company will set new standards for quality and value. The game blows many an expensive package out of the window and some big name software houses had better watch their backs.

John Gilbert

Publisher Mastertronic
Price £2.99 **Memory** 48K
Joystick Kempston, Sinclair
★★★★★

Panzadrome

AN ISLAND full of robot tanks? What do they do there? Who do they shoot at? You of course — since it's your job to destroy all the power generators on the island.



In order to do that you have a tank of your own — the Hell-Tek. It moves in eight directions and fires shells. If all that sounds suspiciously like one of those old tank attack games where you negotiate a maze of buildings while chasing your opponent, go to the top of the class. There are, however, a number of differences which make **Panzadrome** about the best tank game of that type we've ever seen.

The most important feature is that your tank isn't fully built at the start. You have to explore the landscape to collect tracks, mortars, mines, a special storm turret, and Polycrete — a substance which fills in craters.

It is most important to find the Polycrete first, as without it you can soon get boxed in — many routes in the city are only one tank in width, and if they get blocked, you'll never escape.

The graphics are very pleasing, although the only concession to 3D effects is a shadow from the walls of the city. It's an overhead view, and scrolls smoothly over 64 screens.

Combat with the robot tanks should be avoided in preference for finding safe routes — but your first task is to locate the factories where you can obtain extra parts. That is a very tough proposition indeed. We won't help you by explaining what a factory or generator looks like — that's something else you must discover.

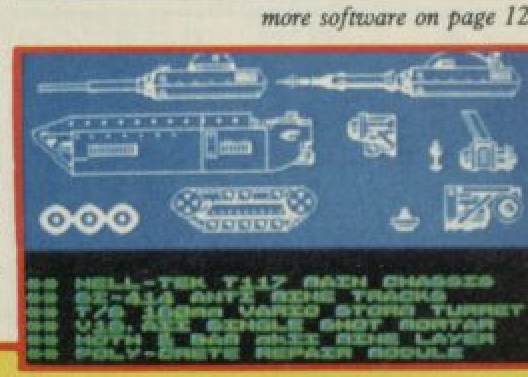
That said, it's also very addictive — after a bit you can see how to achieve your goal but putting that plan into practice is a killer.

Panzadrome is Ariolasoft's first game designed specifically for the Spectrum by the Ramjam programming team — in the past the company has stuck to conversions of American originals which tended to suffer on the Sinclair machine. **Panzadrome** is a welcome sign of a change in policy, and well worth buying if you want a long-term challenge with plenty of violent action.

Chris Bourne

Publisher Ariolasoft
Price £7.95 **Memory** 48K
Joystick Kempston, Sinclair
★★★★

more software on page 120



Spectrum Forth Converter

IT IS WITH due modesty that I can say that it was my series on Forth in *Sinclair User* which prompted John Baxter to write this tape-to-microdrive conversion program for addicts who want faster access to their language.

All you have to do is load in the Artic **Forth** package then type 1 LOAD and run in the converter. The converter will then do its job. First the cassette loads in a piece of code; then the microdrive saves the converted file. The process is repeated several times before the language has been saved for microdrive usage.



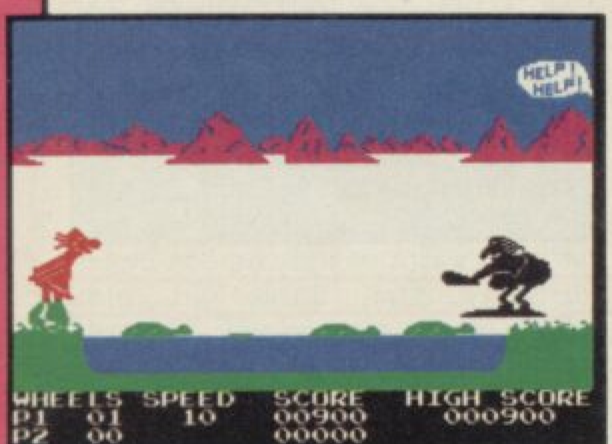
Following the conversion a series of three information screens are loaded. They describe **Forth** screen 99 which, when entered, provides eight new Forth words. Those include routines to back up screens, to list existing tape programs, to copy screens to microdrive and to erase screens.

The utility is a powerful addition to Artic **Forth** for a minority interest group. It shows that Forth is still alive on the Spectrum. *John Gilbert*

Publisher Zero-Plus, 7 Manor Park, Seaton, Hull HU11 5RF
Price £7.00 **Memory** 48K
★★★★★

BC'S Quest For Tires

POOR CUTE CHICK is under threat of extinction from a giant dinosaur



and you must save her.

Taking your favourite stone wheel you bounce across the prehistoric landscape jumping rocks and holes and ducking under trees. The next task is to cross the river via turtleback.

You will need the Dooky Bird for your next test — the lava pit. Cling on to its tail and you'll sail across.

The trail continues with more stones and holes. If you crash into obstacles the stone wheel will flip from under you and bash your brains out in true comic book style. When you eventually arrive at the cave where Cute is held prisoner your joystick hand will be at dropping point.

Although the title has little relevence to the game — other than the fact that it is the name of one of the US



BC cartoons — and the graphics are nothing to write home about, BC has me hooked. I find his on-screen antics very addictive. *John Gilbert*

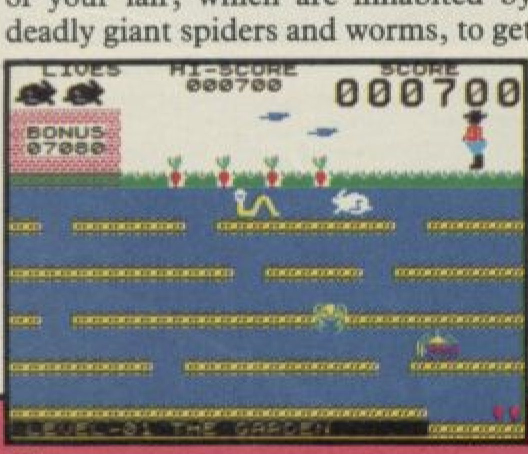
Publisher Software Projects
Price £7.95 **Memory** 48K
Joystick Kempston, Sinclair, Protek
★★★★

Assemblage

WHO THINKS of software names at Artic? **Assemblage** is a suite of four games and not a machine code utility.

Side one contains two arcade games, **Harry Hare's Lair** and **Mutant Monty and the Temple of Doom.**

Harry Hare's Lair has you playing the part of a rabbit after carrots. You make a wild dash through the tunnels of your lair, which are inhabited by deadly giant spiders and worms, to get



to the carrots which have been planted at the top of the screen.

Mutant Monty and the Temple of Doom is another feeble, flickering, attempt by Artic to make a go of their cartoon hero. Monty runs rampant in true **Manic Miner** style, collecting as many valuables as possible without being relieved of his entrails on the local altar.

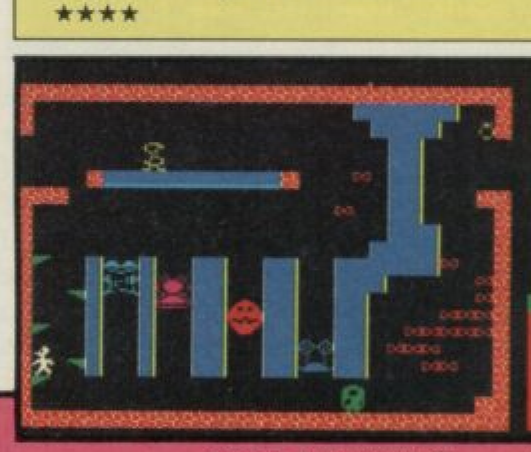
The Curse of the Seven Faces is a text-only adventure in which you must assemble the accoutrements of a wizard to become a magic user. The ever-present curse will be with you on your travels through the misty caverns, as will an evil wizard, who is bent on your destruction.

Robin Hood is a Quilled adventure with full screen graphics supplied by the **Illustrator,** also from Gilsoft. The graphics are drawn slowly, but they disappear when the description of a location appears. You play nature-loving Robin roaming around a forest full of interesting and unlikely locations.

The arcade games are not much cop and it would have been a crime to release them individually but, together with the adventures on the other side of the tape, they make a varied diet. *John Gilbert*

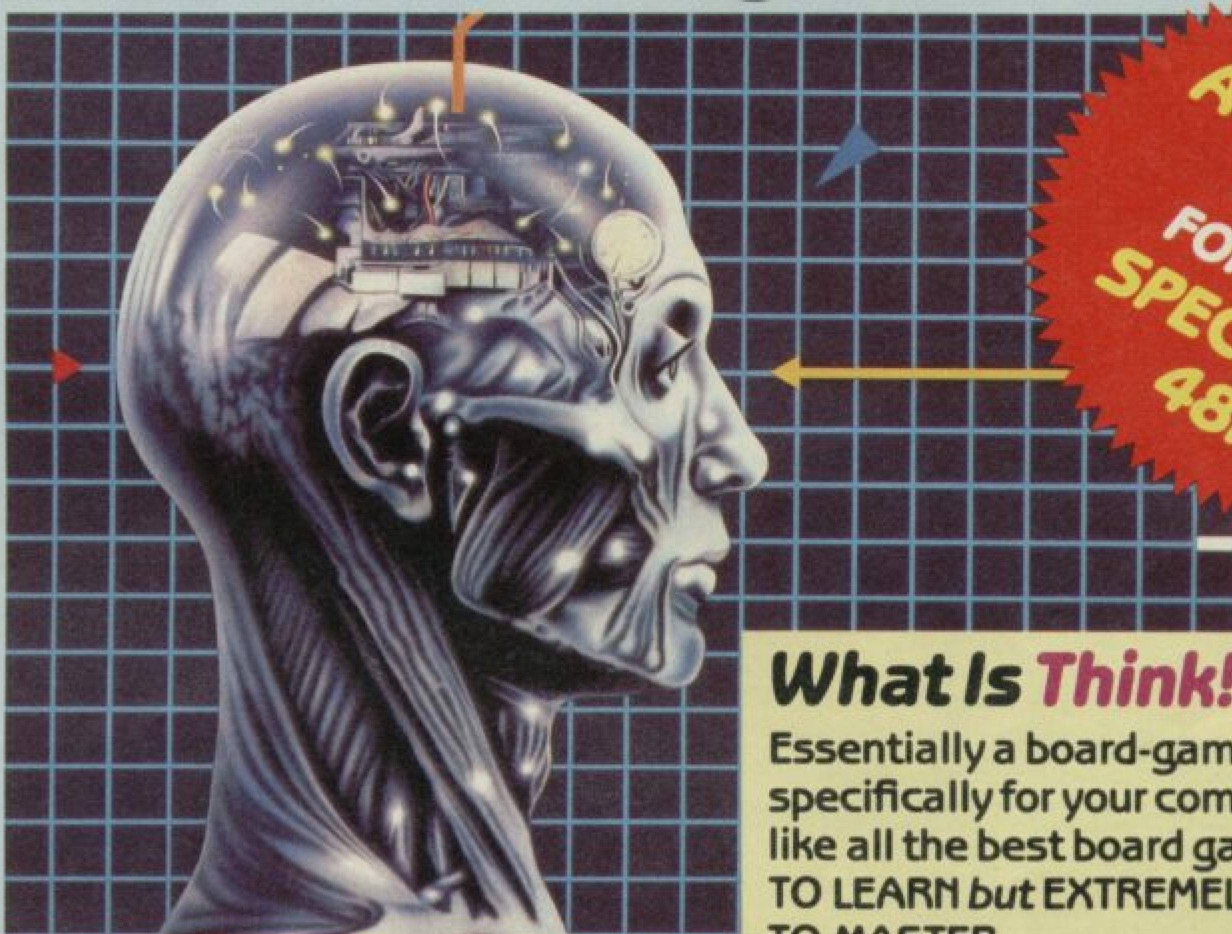
more software on page 122

Publisher Artic Computing
Price £8.95 **Memory** 48K
Joystick Kempston, Sinclair, cursor
★★★★



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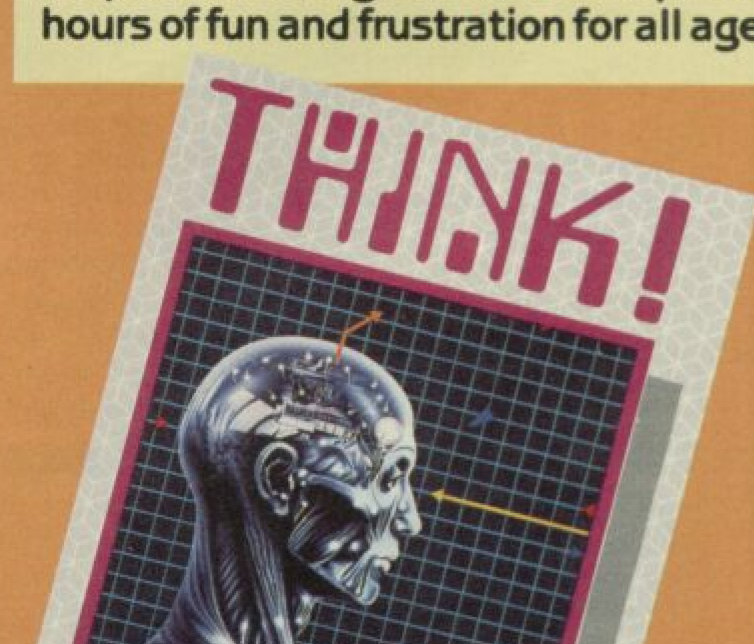
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THINK! *Spectrum 48K cassette* ***£7.95.*** *UK orders only. Prices include P&P. Please allow 28 days for delivery.*

ariolasoft
HIGH PERFORMANCE PROGRAMS

One man and his Droid

IT IS GOOD to know that in centuries to come the age-old skills of the shepherd with his faithful hound will still be of service to mankind. Mastertronic seems to think so, anyway, and **One Man and his Droid** is the result.

You have to capture ramboids, 'a male form of alien sheep' — ho, ho — and herd them into a teleport device with your droid. Why is not so clear.



Never mind. The game falls into two parts, and it's really a maze game with plenty of strategic elements.

The first part involves making your way through hundreds of these metallic beasts to find an exit at the top of the screen. Mastertronic might as well have left that part out, since it's a bit of a chore and nothing like as much fun as the main game.

The second part shows a network of tunnels, in which roam eight different types of ramboid. A display shows the order in which they must be herded into the teleport — you must get four in the right order to progress to the next level.

The droid can fly, dig a hole to let ramboids pass over it, or just stay on the ground. There's a time limit which is generous but rapidly deteriorates for later levels if you don't move fast early on.

The graphics are much better than your average Mastertronic game, chunky and vaguely reminiscent of **Boulder Dash.** Indeed, the whole production is good, and represents excellent value for money at the budget price range.

Herding the ramboids is more a matter of organising their natural movement than just pushing and shoving — you'll have to work out the rules by which they move and then provide judicious obstacles to guide them into the teleport. At later levels that becomes more difficult, as lumps of masonry buzz about the corridors and get in the way.

Each level has a password, and once you've discovered it you can start play at that stage, which is a boon when each game takes at least 20 minutes to play — the initial time limit.

Mastertronic has dumped some pretty revolting stuff on the public in the past. **One Man and His Droid** is challenging, fun, and cleanly presented — budget software seems to be growing up. *Chris Bourne*

Publisher Mastertronic
Price £1.99 **Memory** 48K
Joystick Kempston, Sinclair
★★★★

Computer Christmas Card

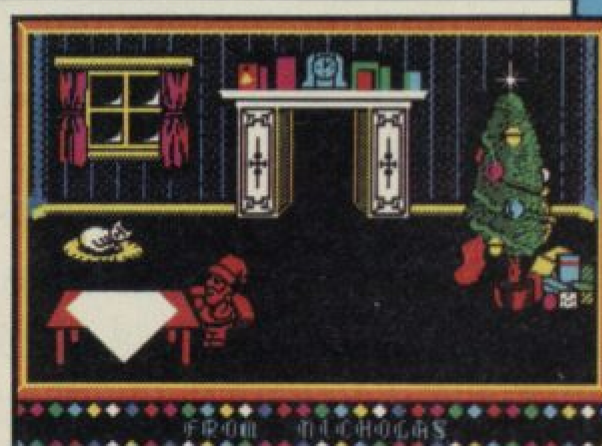
HERE'S an interesting seasonal phenomena — the useless present of which the giver says, "It doesn't do much but it's nice, isn't it?"

When you have fumbled through the embarrassment of keying in the names of sender and victim a pretty display appears with a suitable Christmas sentiment.

Press any key and a snowy rooftop scene replaces the card's message. A reindeer-driven sleigh appears on the horizon, and swings in for a landing on a roof top. Santa hops out and jumps down the chimney. He lands in the living room, puts presents under the tree, drinks his hot toddy, hiccuping as he shoots up the chimney again.

The game on the flip side is no better and hasn't even got pretty graphics to promote it. You have a choice of spaceships with which you must blast a motley collection of aliens brought out of retirement from a Space Invader junk yard.

I am not given to using four letter words but this is a load of hype. But that won't stop you buying it. Go ahead, prove me wrong! *John Gilbert*



Publisher Virgin **Price** £2.99
Memory 48K **Joystick** Kempston, Sinclair, cursor
★★

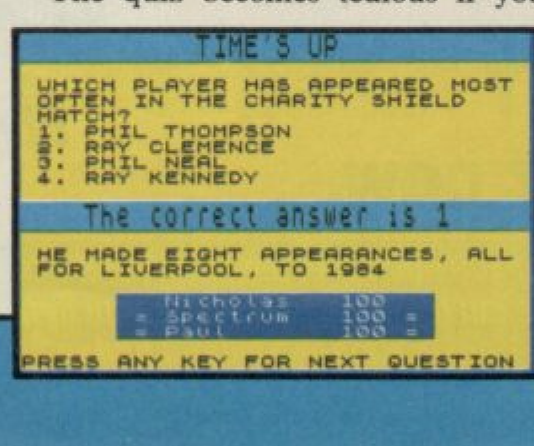
Rothmans Football Quick Quiz

FOOTBALL is supposed to be a social game — so is smoking — but there is nothing very sociable about creating a database of soccer facts, and selling it as a quiz.

Rothmans Football Quick Quiz can be played by up to four teams or individuals. Topics include the FA Cup, The Scottish League Cup and Non-League Football.

There are three question formats within each quiz. Three-in-a-row gives each player a batch of three questions to answer. If one is answered wrongly, a bonus is thrown open to the other players. The race is a free for all buzzer round which uses the reply keys.

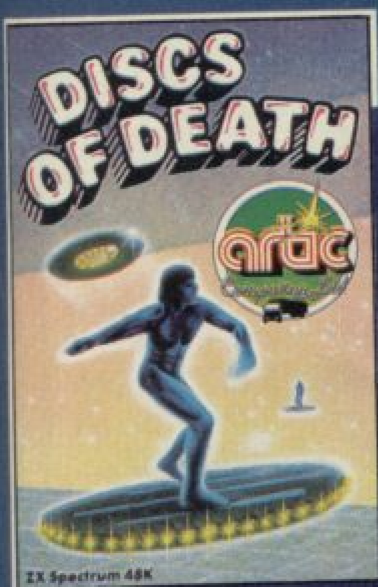
The quiz becomes tedious if you play it for more than half an hour at a time and even the most ardent soccer bibliophile is likely to give the package a free kick before long.



The package would probably not be a commercial success if it did not have the Rothmans name tagged to it. Spin-offs are justified in some instances, but is it laudable to link a cigarette manufacturer's name to a product which many 11 year olds may pick up? *John Gilbert*

Publisher Cassell
Price £8.95 **Memory** 48K
★

NEW RELEASES FROM "THE HOUSE"

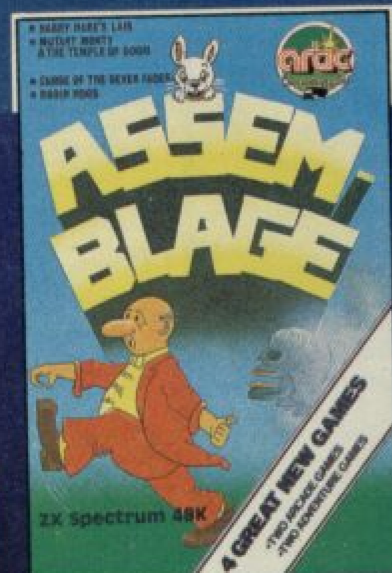


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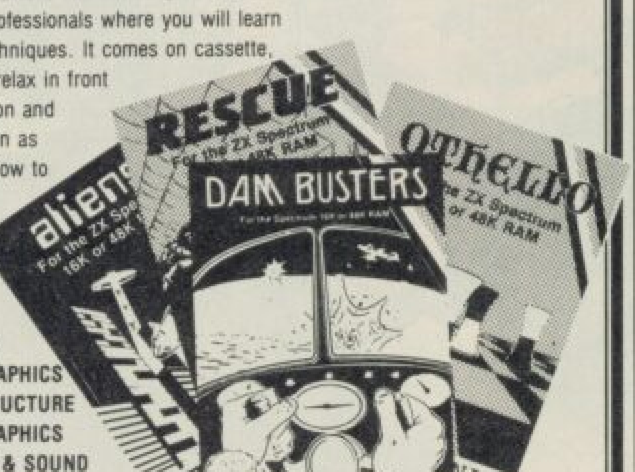
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Going on-line

Tap the network. Chris Bourne explores Micronet 800

BE HONEST. What do you think of when somebody says Micronet 800 to you? Come on, tell the truth. Isn't the image that of a bunch of hard-core hackers polluting screen after screen of pristine teletext with silly jokes, inane messages to mailbox numbers, and the chance to download a few free games of little consequence? Then there's the unwelcome sight of a vast phone bill leaving you bankrupt, starving and unable to afford a tube of toothpaste or a bar of soap.

Not that Micronetters use soap and toothpaste. Oh no, they're all too busy logging on or logging off, or breaking each other's codes, or just reading page after page of drivel about the latest digital coffee-blender . . .

If that's what you think — and there are plenty who do — don't think it anywhere near Peter Probert or Simon D'Arcy. They're the new team at Micronet, and they're out to drag Britain's biggest interactive database kicking and screaming into sobriety. They wear suits, they own ties, they mean business.

In truth, Micronet 800 has expanded mightily since we last ventured into its warrens. Then, in September last year, it was essentially a mailbox facility with some news pages, software you could buy or download free, one interactive game, and pages of technical help.

That's all still there — in fact, there's more of it than ever before — but as the number of subscribers increases, so too the demand for better and wider services grows. There are now 18,000 users, who between them access the system nine million times a month. "Instead of keeping it designed for people with a sole interest in computers, we're opening it up for hobbyists generally," says editor, Simon D'Arcy. He cites information on flying and amateur radio as examples.

"The basic difference between then and now," adds Peter Probert, in charge of publicity, "is that then it was a magazine. Now it's a communications network."

So what do you get from the new, bigger, better Micronet 800? And how do you go about getting it?

The Gear

Your own machine becomes a terminal to the mainframe — a keyboard for typing in information, messages and codes — while the modem interprets your computer's output into something understood by the Micronet system, and vice versa.

Spectrum owners will probably buy the Prism VTX5000 modem, which was designed specifically for use with Micronet 800 — it costs around £45. The modem sits between the telephone system and your computer, so you will need a telephone which uses a jack-plug to a wall socket. British Telecom will do the conversion for you swiftly if you have the old-fashioned sort of telephone system where the wires go straight into the wall.

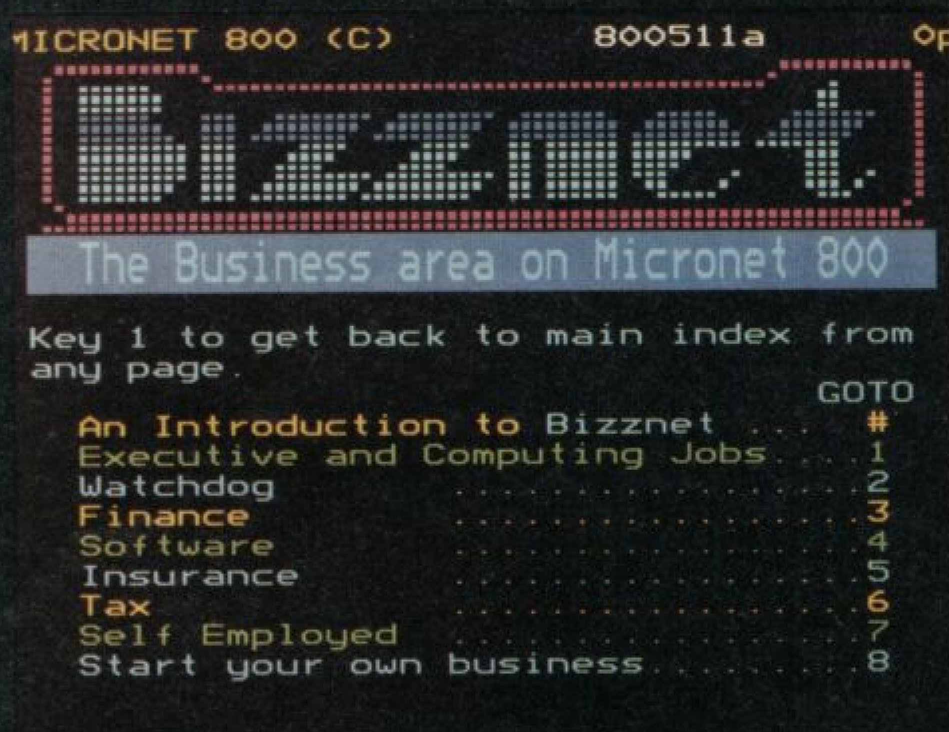
Finally, you need to join Micronet. The subscription costs £16.50 a quarter, which includes membership of Prestel — BT's giant database of which Micronet is a part. When you join, you get two codes — a ten digit entry code and a personal ID. "If anyone allows their ID to be hacked, they're still responsible for what's done using that ID," says Simon. "Change your passwords! Do it once a week, or more regularly still if you keep important information on Micronet."

Once you're enrolled in Micronet, you pay only the cost of a local 'phone call to access the system. That works out at 40 pence an hour after 6pm, and at weekends. There are extra frames which cost money to see, especially on Prestel — but you will always be warned when you are about to add pennies onto your quarterly bill. Those range from a one penny frame to 99 pence for up-to-the-second business information on Prestel.

Generally, you won't pay more than a couple of pence per frame for those special areas, which include commercial information from private companies, and some of the big, set-piece games. Even so, it's possible to rack up big phone bills on Micronet, so be careful.

"The cost can be recouped in minutes with free Telesoftware," says Simon. Certainly Micronet 800 is the cheapest of all commercially run networks. And no matter where you live, you only pay phone charges at local rates — even if you have to access a computer miles away."





What do you get?

Newcomers to Micronet can find the scale of operation daunting at first. There are between 13,000 and 14,000 pages of editorial, up to 8,000 pages of software, and up to 4,000 pages of jokes, puzzles, competitions and the like under the heading Buttons, which is shared between Micronet and ordinary Prestel users alike.

In the old days, Micronet policy was to keep it all mysterious, and tease users into discovering what lurked behind the menu-driven access pages. That's changed. Simon D'Arcy likened the policy to that of booksellers wrapping books and magazines in cellophane so you can't see what's in them. "The shrinkwrap appeal is OK as long as people know what they're likely to get," he says. With a past career as a business consultant, he's adamant that Micronet should be much more accessible. So there's plenty of help to find your way around, including two indexes — a general A-Z index of all the frames and a fast index if you already know what you're looking for.

Mailbox

The heart of the system is still the mailbox service. Subscribers can get their own mailbox number, and send and receive messages to each other. As long as your friends are also on the system, it's cheaper than sending a letter and better than a phone call, because you don't have to wait for the other guy to be at home first.

When you have received new messages, you are told about it as soon as you boot up the system. You can have about 300 messages in your mailbox at a given time — according to Simon, nobody has ever run out of space. "I was a member of Micronet before I worked for it," says Simon. "I joined simply because of the mailbox system. It's an extremely cheap, easy way to keep in touch with your office."

Simon's convinced that serious business users can benefit from Micronet, even if they use more sophisticated and expensive systems for specialised work. Business users in particular will be interested to know that you can now make international Telex calls through Micronet as well — to anywhere in the world.

Good conversation

Mailbox is person-to-person conversation. If you want to shout it from the rooftops, you want to access the Chatline facility.

Chatline is a system where users can talk to each other freely through Micronet. You can sit back and watch the conversations unfold, or take part yourself — at a cost of two pence a message.

In olden times there was only one Chatline run from the Micronet office. Everything had to be typed in to a BBC computer and then fed down the line. Now it's all on mainframe, much faster — and there are eight separate Chatlines to use.



There are two different types. The normal Chatline — six of them — is slower but keeps a complete record of the whole day's conversation, so you can scroll back through the comments at will.

There are also two Daisychats, which have a mere 100 frames each. The frames form a loop, so when the line is full, the new comment simply overwrites the oldest. The Daisychats are very fast — on busy nights it's hard to read the latest message before it disappears.

The formal Chatlines are subdivided further. There's a political line, for armchair ministers. There's also a religious Chatline. Although obscenities and offensive comments are generally banned, the Micronet watchdogs are lenient. On the Religious line, however, speech is monitored.



There's even a Gay Chatline. Why? "Well," says Simon, "it's a bit like CB Radio. A lot of gays are into CB because they can be anonymous. On Gay Chatline you can hide your identity, until you're confident enough to use Mailbox."

Star quality

There's also Celebrity Chatline. It operates like a phone-in every Wednesday night where you get to send in questions to a star personality. Recent interviewees ranged from Acorn bigwigs to pop star Fergal Sharkey, who's an avid Commodore user in his spare time. We sat in on an interview with Hitch-hiker specialist Douglas Adams.

The big drawback to Celebrity Chatline is the time lag — the old BBC system is still used, so answers are filtered through a Micronet journalist. Douglas clearly got a little bored with being asked whether there'd be a new Hitch-hiker book again and again. The answer is no.

continued on page 132

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continued from page 127

Lonely hearts and brazen brains

For more aggressive characters, there's a contact service which enables you to reach people with similar interests. That includes lonely heart sections, though it's hard to see what sort of a romance you can have in the middle of a mainframe computer. Problems with your micro are catered for, as well as problems with life in general — on Soothe It.

For real exhibitionists, The Gallery is the thing. That costs money, but you get the chance to run your own teletext magazine. You book up to 26 frames for a minimum of four months, and then put whatever you like on them — jokes, articles, reviews,



answers to correspondence and the like. The cost is on a sliding scale — 99 pence for the first four frames, then 50 pence for the rest, with a 10 pence charge to edit a frame. That works out at about £5-6 a month to run a 25 frame magazine.

Some of the Gallery items are very professional. Others are just plain funny. One contributor writes pages of mock-medical advice. "Ginseng has been found to cause short-sightedness and the flaky nail syndrome," he says. "Jogger's baldness can be cured by mineral water. Use Malvern for straight hair and Perrier for curly."

Bizznet

Business interests are catered for as well. Bizznet provides advice and information about business software, consumer rights, and starting up a company. But it's not just pages of information which are zapped onto your screen. Those services, and others on Micronet, are interactive — you send in your problems and get them answered. "It's a much more serious application of videotext than has been seen for some time," says Simon.

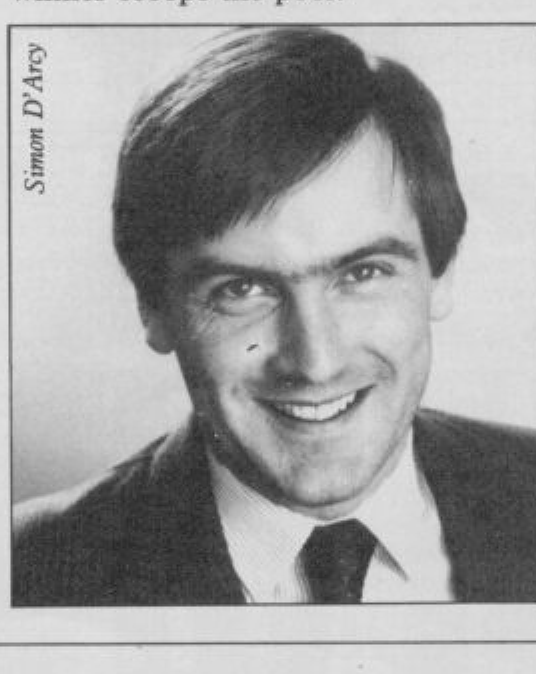
The software

"A lot of people thought Micronet was an alternative to playing games in amusement arcades," says Simon. Although he's developing new areas of activity the whole time, if games are your interest then there's still lots of fun to be had on the net. There are three types of game service available. There are the free programs — hundreds of them, which you can download into your Spectrum and play. Those vary in quality, but there's usually something worthwhile.

Then there are programs you pay for. Some of those are utilities — such as software to adapt your modem in various ways, for instance, making the screen scroll. That's vital if you want to use a VTX5000 to play **Multi-User Dungeon** or access some of the more obscure bulletin boards around the country.

You can also order software through Micronet from software houses, at a good discount. A copy of **Elite** would cost you £11.96 compared to £14.95 in the shops. "You'll be sent the game the day after you order it," promises Simon.

Then there are the interactive games — the sort of thing you can only play through networks like Micronet. **Round Britain Race** sets you to move around a map of Britain looking for the sites of various events or places. Each move costs one penny, and at the end of each game the winner scoops the pool.



Simon D'Arcy

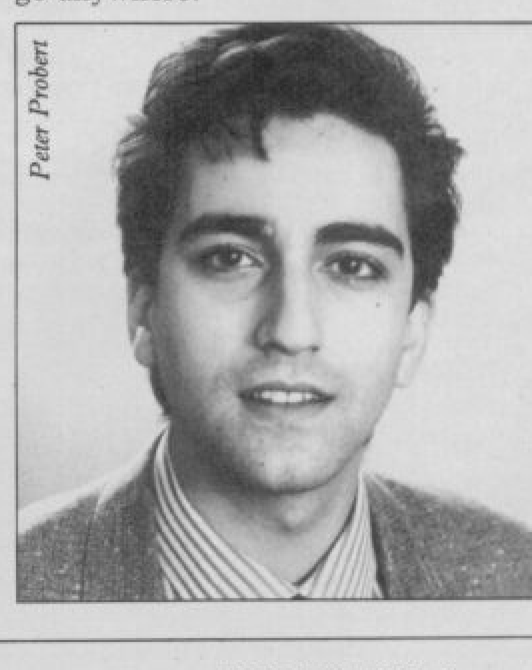
There's also **Starnet** — off the system since July but back again in an improved version soon, according to Peter. That's a game of intergalactic empire-building; you run a planet initially and go on from there to conquer the galaxy. You can make or break alliances with other players, and the action often spills over into the Mailbox area as secret conspiracies are formed between players. The new version can cater for 500 players — it's the sort of experience you can't get anywhere else.

Micronet is very sensitive about problems of hacking. "We can see the appeal of hacking," says Peter, "but we want to make Micronet a viable alternative to hacking." That may become more of a reality soon — one idea is to have an area specially set up for hackers, with all the best security devices Micronet can invent. The idea being to hack into it and leave your name on the central frame.

End frame

We haven't even touched on the news coverage offered by Micronet, the reviews of software, books, films . . . As Simon says, "There's more put onto Micronet every day than anyone could possibly read." When you compare that with Peter's statement that, "Micronet is about to be born," you begin to see the potential of the system. "The only thing holding us back," says Peter, "is Prestel itself — the limitations imposed by their system of Teletext. But we're getting more influential all the time — we can push British Telecom into letting us do things like Chatline and Gallery."

The idea of pushing BT around is a little daunting, but with 18,000 Micronetters behind you, it seems you can go anywhere.



Peter Probert

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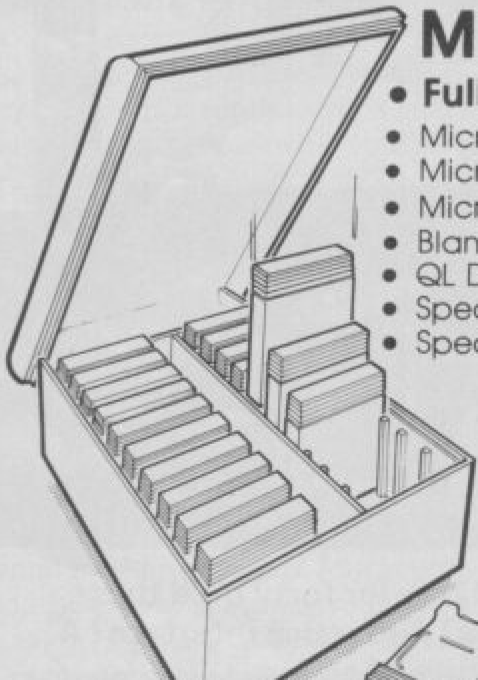
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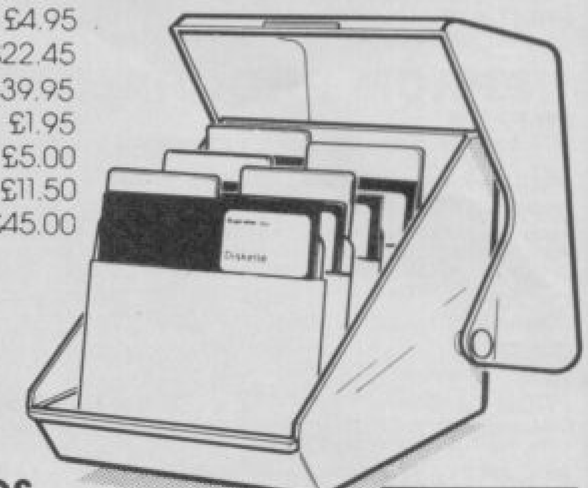


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SU

Magic & Superman winners

DESPITE the impressive response to the **Superman** competition in November's *Sinclair User*, only one-tenth of the entries were correct. The answers were as follows: 1(c), 2(c), 3(a), 4(b), and 5(c); many readers were confused by question 4, not realising that Lana only worked at the *Daily Planet* in the films, while the quiz was based on the comics alone.

The 100 winners, who each win a copy of **Superman**, are: S J Keates, Sandwich, Kent; Ralph Pattison, Newcastle, Staffordshire; K E Hinder, Dursley, Gloucestershire; Sven Englund, Osby, Sweden; Paul Denis, London N19; Martin Warner, London SE28; Patrick Beasley, Torquay, Devon; J Bush, Bitterne Park, Southampton; P Tory, Kempston, Bedfordshire; Gareth Price, South Glamorgan; K J Hutchinson, Gateshead, Tyne & Wear; R Graham, Peterhead, Aberdeenshire; J Hunter, Telford, Salop; Graham Kibble-White, Kincross, Scotland; G M Gittens, Hinckley, Leicester; Steve Friel, London E4; Rob Ramshaw, Tynemouth, Tyne & Wear; Derek Maclean, Inverness; D K Hamm, Chesham, Buckinghamshire; Robert McBride, Montrose, Angus; Tim Stollery, Hounslow, Middlesex; P Blackwell, Chesterfield, Derbyshire; Jonathan Bowen, Sale, Cheshire; C J Forss, Reading, Berkshire; Mervyn Neill, Belfast; Steve Nichols, Lewes, East Sussex; J A Osso, Abingdon, Oxfordshire; Jeremy Segel, London NW4; Nick Almond, Coventry; Billy Ormiston, Edinburgh; Geoff Perks, Manchester; George Gaylor, Glasgow; K Curtis, Hull; Stephen Rymill, Wirral, Merseyside; L Lucus, Birmingham; K Pridmore, Anlaby, East Yorkshire; Dominic Jarrett, Bearsden, Glasgow; Eric Coolen, West Germany; Daniel McDonald, Hull; B J Murphy, Manchester; A Gray, Manchester; J A Riddell, Herne Bay, Kent; Joseph Rafferty, Muirhouse, Motherwell; P Rodgers, Chesterfield, Derbyshire; Phillip Mason, Tamworth, Staffordshire; F McAudley, Parkhill, Antrim; G Pickstone, Barnes Meadowes, Littleborough; John Littler, Manchester; G Culverhouse, Darwen, Lancashire; J McNamee, West Lothian; Glen Cooper, Newport, Gwent; E Petit, Weymouth, Dorset; Jordi Robinson, North Anston, Sheffield; Jacob Wittrock, Farum, Denmark; Simon Carson, Birkenhead, Merseyside; Gregory Snowzell, Hereford; Richard Evans, Bognor Regis, West Sussex; K Larwood, Romford, Essex, K Thain, Washington, Tyne & Wear; Harald Hoftun, Norway; C Bennett, Barrow-in-Furness, Cumbria; Harry Maton, Croydon, Surrey; David Butten, Woolston, Southampton; Graham Smith, Leeds; J Miller, Bolton, Lancashire; Andrew Keys, Newton Abbot, Devon; Jeffrey Grant, Bristol; Charalambos Stavriniden, Limassol, Cyprus; F Parkar, Birmingham; Peter Tiley, Bristol; Derrick Bolsover, Sheffield; Paul Gardner, Whitley Bay, Tyne & Wear; Nigel Vian, Winchester, Hampshire; Tan Thiam Soon, Singapore; Mohammed Patel, London E10; Paul Greenough, Radcliffe, Manchester; Matthew Parford, Uxbridge; Andrew Dougan, Redditch, Worcestershire; Paul Farrington, Biddulph, Stoke-on-Trent; J Spring, Ilford, Essex; Glyn Jones, Basildon, Essex; Christopher Evans, Pontarddulais, Swansea; Steve Edwards, Manchester; William Lyne, Stockton Heath, Warrington; Ian Hillery, Durham; Daniel Ford, Halstead, Essex; Mark McKay, Manchester; Anthony Moran, Birmingham; Steve Jones, Sutton Coldfield, West Midlands; C Hodgson, East Ham, London E6; Richard Lotham, Stoke-on-Trent; Andrew Pearce, Mansfield; Scott Fuller, East Grinstead, West Sussex; Philip Laycock, Sheffield; K Sonubi, Derby; S Mitchell, Basingstoke, Hampshire; E Graham, London E5; Mark Beetesworth, Weston-Super-Mare, Avon; Eric Dent, Altringham, Cheshire; Martin Phillips, Knutsford, Cheshire.

The **Magic** competition, in the same issue, tapped a vein of amateur *Sinclair User* conjurors. The sequence of the three mystery cards was: eight, four, and ten. The first prize winner, who receives three tickets to a special Magic Circle Club evening, and a copy of **Magic**, is: Roger Adlard, from Hoddesdon, Hertfordshire.

The 99 runners-up, who receive **Magic** packages, are: Neil Marshall, Park Estate, Shiremoor; M Gore, Abingdon, Oxfordshire; L Glenister, London SE10; Travis Rout, Hastings, East Sussex; Douglas Hart, Luton, Bedfordshire; I Searle, London SW1; Danny Haldane, March, Cambridgeshire; Christopher Martin, Kenley, Surrey; Nicholas Ashton, London SE6; R Croad, Thetford, Norfolk; P Stevens, Coventry; David Cookson, Withernsea, North Humberside; P Evanson, Crieff, Perthshire; Paul Drage, London E7; M Wabe, Edinburgh EH12; Alex Mallinson, Farnham, Surrey; L O'Neill, Watford, Hertfordshire; S Keates, Sandwich, Kent; A D Hayes, Hengoed, Mid Glamorgan; Stephen Parker, Huntingdon, Cambridgeshire; Shani Connor, Wildwood, Stafford; R Harris, Upminster, Essex; Adam Walters, Lindfield, West Sussex; J Pardy, Broadstone, Dorset; Ben Lower, Wadhurst, Sussex; Steven Williams, Tamworth, Staffordshire; Tim Matthews, Cambridge; Alistair Fulcher, Goole, Northumberside; S Sorgente, Street, Somerset; Christopher Pender, Penicuik, Midlothian; Calum Scott, By Ayr; M Wilkinson, Newton Aycliffe, Co Durham; D Stewart, Dennistoun, Glasgow; Jonathan Ridehalgh, Markfield, Leicester; C Harris, Maidstone, Kent; Steve Matthews, Cambridge; James Castle, Welwyn Garden City, Hertfordshire; Graham Oglesby, Radcliffe, Manchester; Sue Parkes, West Bromwich, West Midlands; S Sullivan, Reigate, Surrey; Tim Harris, Devizes, Wiltshire; Andrew Fox, Thetford, Norfolk; E Pocock, Earley, Reading; M Nicholson, Camberley, Surrey; William Campbell Barnard, Harwards Heath, West Sussex; K Wood, Liskeard, Cornwall; Lucien Bowater, Chagford, Devon; Stephen O'Dea, Romford, Essex; Timo Reinikka, Uusikaupaunki, Finland; Mr Stalker, Lewes, Sussex; Steven Fairless, Kingston Park, Newcastle on Tyne; M White, Bath, Avon; C Matthewman, Thurgoland, Sheffield; David Lyon, Ascot, Berkshire; Stephen Wade, London E8; Richard Huss, Lisburn, Co Antrim; Arthur Beale, Blandford Forum, Dorset; Kevin Lloyd, Caernarfon, Gwynedd; Angelo Papapanagiotou, West Ewell, Surrey; Mats Bylund, Langsele, Sweden; Martin Donson, Billingham, Cleveland; J Swamkie, Motherwell, Lanarkshire; Ann Parfitt, Northolt, Middlesex; S Pechell, Reading, Berkshire; R Storrar, Livingston, West Lothian; Nick Ratcliffe, Middlewich, Cheshire; Alan Wylie, Ormskirk, Lancashire; Andrew Watson, Woodthorpe, Yorkshire; Ian Ridge, Wirral, Merseyside; Kevin Jones, Leeds, West Yorkshire; Andrew Booty, Norwich, Norfolk; Frank Fearn, Long Eaton, Nottinghamshire; M Kent, Longton, Staffordshire; Steven Corbett, Thatcham, Berkshire; James March, Hull, North Humberside; D Mildren, Taunton, Somerset; P Serbert, Harrogate, North Yorkshire; David Butten, Woolston, Southampton; J Hart, Vetnor, Isle of Wight; P Page, Noctdrum, Wirral; Simon Martin, Bristol; D Smith, Woodford Green, Essex; Kurt Jasper, Warley, West Midlands; R H Boylis, Guildford, Surrey; M Dicker, Bristol; K White, Weston Super Mare, Avon; Tushar Walhekar, Hounslow, Middlesex; Gary Swindlehurst, Matson, Gloucestershire; Duncan Crosby, Bracebridge Heath, Lincolnshire; S Wright, Harbourne, Birmingham; Andrew Tremlin, Chard, Somerset; Paul Lesmans, Acomb, Yorkshire; Colin Smith, Bradford, West Yorkshire; C Chambers, Bulwell, Nottingham; Phil Sawyer, Lytham St Annes, Lancashire; H Walker, Bursham, Guildford; Lee Collier, Erdington, Birmingham; L Rayner, Westcliffe-on-Sea, Essex; B J Carter, London E2.



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Crevasse and Hotfoot	Microsphere	4★
Cyber Rats	Silversoft	4★
Death Chase	Micromega	3★
Earth Defence	Artic	3★
Escape	New Generation	4★
Fruit Machine	DK'tronics	3★
Galaxians	Artic	3★
Gnasher	Mastertronic	2★
Godzilla and Martians	Temptation	4★
Ground Attack	Silversoft	3★
Horace and the Spiders	Sinclair	4★
Horace Goes Skiing	Sinclair	3★
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Meteoroids	DK'tronics	4★
Micro Mouse	Lothlorien	3★
Mined Out	Quicksilva	4★
Mr Wong's Loopy Laundry	Artic	3★
Muncher	Silversoft	3★
Orbiter	Silversoft	4★
Planetoids	Sinclair	3★
Proteus	Abacus	3★
Rider	Virgin	3★
Road Toad	DK'tronics	4★
Sentinel	Abacus	4★
Sir Lancelot	Melbourne House	4★
Space Intruders	Quicksilva	4★
Space Raiders	Sinclair	3★
Spec. Scramble	Work Force	4★
Spectral Invaders	Bug-Byte	4★
Spectral Panic	Hewson	3★
Tank Battle	dk'tronics	4★
Train Game	Microsphere	5★
Winged Warlord	CDS	3★
Yomp	Virgin	4★

Business

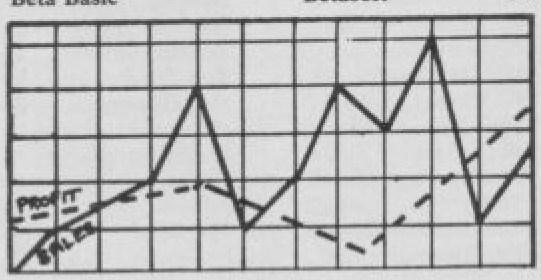
Finance Manager	OCP	5★
Survey II	Lobos	3★
Vu-Calc	Sinclair	4★
Vu-File	Sinclair	4★

Education

Chess Tutor	Artic	4★
Estimator Racer	Psion	4★
Firework Music	Soft Cottage	4★
Integration	University	4★
Money	Poppy	4★
Number Painter	Psion	4★
Regression	University	4★

Language

Beta Basic	Betasoft	5★



Practical

Countries of the World	Hewson	4★
Cycle Planner	Medidata	2★
Map of the UK	Kuma	4★

Puzzle

Flippit	Sinclair	4★
Hanoi King	Contrast	4★
Lojix	Virgin	2★
Nowotnik Puzzle	Phipps	4★

Simulation

Air Traffic Controller	Hewson	3★
Airliner	Protek	3★
Golf	Virgin	4★
NightFlite	Hewson	3★
Print Shop	CCS	4★
Pro-Golf	Hornby	4★

Strategy

Dallas	CCS	3★
Dictator	DK'tronics	4★
Heathrow	Hewson	4★

Traditional

Bridge Tutor	CP Software	4★
Bridgemaster	Serin	5★
Las Vegas	Temptation	3★
Pool	Bug-Byte	4★
Reversi	Sinclair	4★

Utility

Auto Sonics	Buttercraft	3★
Basic Utilities	Jaysoft	3★
Disassembler	DK'tronics	4★
Editor/Assembler	Picturesque	4★
Extended Basic	CP Software	4★
FP Compiler	Softek	5★
Friendly Face	Monitor	4★
Letterfont	Allanson	4★
Machine Code Test Tool	OCP	4★
Master Toolkit	OCP	4★
MCoder	PSS	4★
Print Utilities	Sinclair	4★
Slow Loader	ELR	5★
Sound FX	DK'tronics	3★
Spec. Editor/ Assembler	Picturesque	4★
Spec. Monitor	Picturesque	4★
Spectrum Super Toolkit	Nectarine	4★
Supercode	CP	4★
Trace	Texgate	4★
TT-S	Timedata	4★

SPECTRUM 48K

Adventure

Abyss	CCS	3★
Adventure 1	Abersoft	3★
Adventureland/Secret Mission	Adventure Internat.	4★
Alchemist	Beau Jolly	4★
Amulet	Sentient Software	2★
Ancient Quests	Mirrorsoft	4★
Ashkeron	Mirrorsoft	3★
Assignment East Berlin	Sterling Software	2★
Atlas Assignment	Virgin	4★
Black Crystal	Mastervision	4★
Black Planet	Phipps	4★
Bored of the Rings	Silversoft	5★
Caesar's Travels	Mirrorsoft	2★
Classic Adventure	Melbourne House	4★
Colditz	Phipps	4★
Colossal Caves	CP Software	4★
Confidential	Radar Games	4★
Crystal Frog	Sentient Software	3★
Crystal Quest	Pocket Money	5★
Curse of the Seven Faces	Imperial Software	3★
D. Mouse in Black Forest	Creative Sparks	4★
Dead at the Controls	Artic	2★
Detective	Arcade	4★
Diamond Quest	CCS	2★
Diamond Trail	Gilsoft	4★
Doomdark's Revenge	Beyond	5★
Dun Darach	Gargoyle	5★
Dungeon Master	Crystal Comp.	4★
Dungeons of Doom	Temptation	2★
El Dorado	Atlantis	4★
Emerald Isle	Level Nine	4★
Erik the Viking	Level Nine	4★
Espionage	Modular Resources	2★
Espionage Island	Artic	3★
Eureka	Domark	3★
Everest Ascent	Shepherd	3★
Eye of Bain	Artic	4★
Fairlight	The Edge	5★
Fantasia Diamond	Hewson	4★
The Final Mission	Incentive	4★
Flight from the Dark	Hutchinson	4★
The Fourth Protocol	Century/Hutchinson	5★
Frankie goes to Hollywood	Ocean	5★
Frog Face	Positive Image	4★
Ghoulies	IMS Software	4★
Golden Apple	Artic	4★
Gremlins	Adventure Int	3★
The Great Space Race	Legend	2★
Halls of Things	Crystal Comp.	5★
Hampstead	Melbourne House	5★
The Helm	Firebird	4★
Here comes the sun	Alligata	4★
Heroes of Karn	Interceptor	3★
Hobbit	Melbourne House	5★
Ice Station Zero	8th Day	3★
Inca Curse	Artic	3★
Inferno	Shepherd	4★
Invincible Island	Shepherd	4★
Island	Crystal	2★
Jericho Road	Shards	4★
The Jewel of Power	Slogger Software	4★
Jewels of Babylon	Interceptor	2★
Jungle Adventure	CCS	2★
Kentilla	Micromega	3★
Key of Hope	Games Workshop	4★
King Arthur's Quest	Hill MacGibbon	2★
Knight's Quest	Phipps	3★
Leopard Lord	Add-on	2★
London Adventure	Fridaysoft	5★
Lords of Midnight	Beyond	5★
Lords of Time	Level Nine	4★
Mad Martha	Mikro-Gen	4★
Madcap Manor	Gilsoft	5★
Malice in Wonderland	Sentient Software	3★
The Magic Sword	Database Pubs	3★
Marsport	Gargoyle	5★
Mountains of Ket	Incentive	4★
Morden's Quest	Melbourne House	5★
Murder at Manor	Gemtime	4★
Odyssey of Hope	Martech	3★
Operation Nightingale	Softly Softly	3★
Oracle's Cave	Doric	4★
Orc Slayer	Gamma Software	3★
Paradox	Runesoft	1★
Pay Off, The	Bignose	2★
Perseus and Andromeda	Channel 8	4★
Phineas Frogg	Mirrorsoft	4★
Pimania	Automata	4★
The Prince	CCS	4★
The Prisoner	Spoof Software	3★
Project X	Compass Software	4★
Quest	Hewson	4★
Quetzalcoatl	Virgin	4★
The Rats	Hodder/Stoughton	5★
Red Moon	Level 9	5★
Return of the Joystick	Delta 4	3★
Return to Eden	Level Nine	4★
Robin of Sherwood	Adventure Int	5★
Runestone	Games Workshop	4★
Runes of Zendos	Dorcas Software	3★
The Sandman Cometh	Star Dreams	4★
Satan's Pendulum	Minatron	4★
Scoop	Sentient Software	3★
Secret Diary of A. Mole	Mosaic	3★
The Secrets of St Bride's	St Bride's	5★
Se-Kaa of Assiah	Mastervision	2★
Shadow of the Unicorn	Mikro-Gen	5★
Sherlock	Melbourne House	5★
Ship of Doom	Artic	4★
Snowball	Level 9	5★
Sorderon's Shadow	Beyond	5★
Spoof	Runesoft	4★
Subsunk	Firebird	4★
Superspy	Shepherd	3★
System 15000	Craig Comm.	5★
The Talisman	Games Workshop	4★
Temple of Vran	Incentive	4★
Terrormolinos	Melbourne House	5★
Timesearch	Millenium	3★
Tir Na Nog	Gargoyle	5★
Titanic	R&R	3★
Tower of Despair	Games Workshop	3★

Transylvanian Tower	Shepherd	3★
Twin Kingdom Valley	Bug-Byte	4★
Underworld	Orpheus	3★
Urban Upstart	Shepherd	4★
Valhalla	Legend	5★
Vampire Village	Terminal	2★
Velnor's Lair	Quicksilva	4★
Volcanic Dungeon	Mastervision	3★
Warlord	Interceptor	3★
War of the Worlds	CRL	2★
Waydor	IMS Software	2★
Width of the World	Mosaic	2★
The Wild Bunch	Firebird	2★

Arcade

Abu Simbel Profanation	Gremlin Graphics	4★
Action Biker	Mastertronic	1★
A Day in the Life	Micromega	4★
A View to a Kill	Domark	4★
Ad Astra	Gargoyle Games	4★
Adven. of a St Bernard	Mastertronic	4★
Airwolf	Elite	2★
Alcatraz Harry	Mastertronic	2★
Alien 8	Ultimate	5★
Android Two	Vortex	5★
Ant Attack	Quicksilva	5★
Arabian Nights	Interceptor	4★
Archon	Ariolasoft	2★
Arena 3000	Microdeal	3★
Armageddon	Silversoft	2★
Astro-Clone	Hewson	5★
Astronut	Software Projects	4★
Atic Atac	Ultimate	5★
Automania	Micro-Gen	3★
Avalon	Hewson	5★
Back to Skool	Microshpere	5★
Base Invaders	Work Force	3★
Battle Zone	Quicksilva	3★
Bazam	Alan Firminger	3★
Beach Head	US Gold	4★
Bear Bovver	Artic	4★
Big Ben Strikes Again	Artic	3★
Birds and Bees	Bug-Byte	4★
Birthday Party	Macmillan	4★
Black Hawk	Creative Sparks	4★
Blade Alley	PSS	3★
Blue Max	US Gold	3★
Blue Thunder	Foundry Systems	3★
BMX Trials	Lainlan Software	2★
Booty	Firebird	4★
Boulder Dash	Front Runner	3★
Bounty Bob Strikes Back	US Gold	3★
Brian Bloodaxe	The Edge	4★
Brian Jack's Challenge	Martech	2★
Bristles	Statesoft	3★
Bruce Lee	US Gold	4★
Buck Rogers	US Gold	2★
Bugaboo	Quicksilva	4★
Buzz Off	Electric	3★
Caesar the Cat	Mirrorsoft	4★
Carnival	Eclipse	3★
Carpet Capers	Terminal	3★
Cauldron	Palace	5★
Cavelon	Ocean	4★
Centipoid Plus 3	Orwin	3★
Chaos	Games Workshop	4★
Chequered Flag	Sinclair	5★
Chimera	Firebird	5★
Chinese Juggler	Ocean	3★
Chocolate Factory	Hill MacGibbon	3★
Chuckie Egg	A & F	5★
Chuckie Egg II	A & F	3★
Chuckman	CCI/Add-on	4★
Close-In	Pulsonic	2★
Codename Mat	Micromega	5★
Codename MAT II	Domark	3★
Confuzion	Incentive	4★
Corridors of Genon	New Generation	5★
The Covenant	PSS	2★
Critical Mass	Durell	4★
Crusoe	Automata	3★
Custard Kid	New Generation	3★
Cyclone	Vortex	4★
Cylu	Firebird	4★
Daley's Decathlon	Ocean	5★
Daley's Super-Test	Ocean	4★
Dangermouse in D. Trouble	Creative Sparks	4★
Death Chess 5000	Artic	4★
Death Star Interceptor	System 3	1★
Defusion	Incentive	3★
Deus Ex Machina	Automata	5★
Devil Rides In	Mastertronic	4★
Dimension Destructors	Artic	4★
Dodge City	Phoenix	4★
Don't Buy This	Firebird	2★
Dr Franky and the Monster	Virgin	3★
Dragonfire	Cheetahsoft	3★
Dragontorc	Hewson	4★
Driller Tanks	Sinclair	2★
Drive In	Fantasy	2★
Dynamite Dan	Mirrorsoft	5★
Energy 30,000	Elm	2★
Eric and the Floaters	Sinclair	3★
Everyone's a Wally	Mikro-Gen	4★
Exodus	Firebird	2★
Falcon Patrol II	Virgin	3★
Falklands Crisis	Lainlan Software	2★
Fantastic Voyage	Quicksilva	4★
Fighting Warrior	Melbourne House	4★
Frankenstein 2000	Icon	2★
Frank N Stein	PSS	4★
Fred	Quicksilva	3★
Froot Loop	NTD Software	3★
Galaxy Attack	Sunshine	2★
Ghostbusters	Activision	4★
Ghost Rider	Positive Image	2★
Giant's Revenge	Thor	2★
Gift from the Gods	Ocean	3★
Gilligan's Gold	Ocean	3★
Glass	Quicksilva	4★
Glug Glug	CRL	3★
Go To Hell	666	3★
Great Fire of London	Rabbit	3★
Grumphy Gumphrey	Gremlin Graphics	5★
The Guardian	PSS	3★
Gyroscope	Melbourne House	5★
Havoc	Dynavision	1★
Harry Goes Home	Pulsonic	3★
Helichopper	Firebird	2★
Hellfire	Melbourne House	4★
Herbert's Dummy Run	Mikro-Gen	4★
Hickstead	CCS	2★
High Noon	Work Force	5★
Highway Encounter	Vortex	5★
Hunchback	Ocean	4★
Hunchback II	Ocean	3★
Hypersports	Imagine	4★
Icicle Works	Statesoft	2★
Impossible Mission	US Gold	4★
Invasion Body Snatch.	Crystal	5★
Jack and the Beanstalk	Thor	3★
Jasper	Micromega	3★
Jet Set Willy	Software Projects	5★
Jet Set Willy II	Software Projects	3★
Jump Challenge	Martech	3★
Killer Knight	Phipps	3★
Knight Lore	Ultimate	5★
Knockout	Alligata	2★
Kokotoni Wilf	Elite	3★
Komplex	Legend	2★
Krakatoa	Abbex	4★
Kung-Fu	Bug-Byte	3★
Laser Zone	Quicksilva	4★
Laserwarp	Mikro-Gen	3★
Lazy Jones	Terminal Software	2★
Les Flics	PSS	3★
Locomotion	Mastertronic	4★
Lode Runner	Software Projects	3★
Loony Zoo	Phipps	3★
Lunar Jetman	Ultimate	5★
Macadam Bumper	PSS	4★
Magic Roundabout	CRL	2★
Manic Miner	Bug-Byte	5★
Matrix	Salamander	4★
Maziacs	DK'tronics	5★
Maze Craze	Partyline	4★
Metabolis	Gremlin Graphics	4★
Metagalactic Llamas	Salamander	4★
Mighty Magus	Quicksilva	2★
Minder	DK'tronics	4★
Mission Impossible	Silversoft	3★
Mission Omega	Pulsonic	2★
Monkey Biznes	Artic	4★
Moon Cresta	Incentive	3★
Moons of Tantalus	Cornhill	3★
Monty is Innocent	Gremlin Graphics	4★
Monty on the Run	Gremlin Graphics	4★
Mr Wimpey	Ocean	4★
Mummy Mummy	Lothlorien	3★
Munnery's Mergatroids	Abacus	3★
Mutant Monty	Artic	4★
New Cylon Attack	A&F	3★
Nicotine Nightmare	Atlantis	2★
Night Gunner	Digital Integration	3★
Nightshade	Ultimate	5★
Nodes of Yesod	Odin	4★
Nonterraqueous	Mastertronics	3★
1994	Visions	2★
911TS	Elite	1★
Olympimania	Automata	3★
On the Run	Design Design	3★
Orion	Software Projects	3★
Paws	Artic	4★
Pedro	Beau Jolly	4★
Penetrator	Melbourne House	5★
Pi-Balled	Automata	4★
Pi-Eyed	Automata	3★
Pitfall II	Activision	3★
Popeye	DK Tronics	4★
Potty Pigeon	Gremlin Graphics	3★
Potty Professor	Software Farm	4★
Psi-Spy	Postern	3★
Pssst	Ultimate	4★
Psytron	Beyond	5★
Pyjamarama	Mikro-Gen	4★
Pyramid	Fantasy	4★
Quackshot	Creative Sparks	3★
Rapscallion	Bug-Byte	3★
Reactor	Gemini	4★
Revenge of the K. Tomatoes	Visions	3★
Riddler's Den	Electric Dreams	5★
Rider	Virgin	3★
River Rescue	Creative Sparks	2★
Robot Riot	Silversoft	3★
Rocco	Gremlin	3★
Rockford's Riots	Monolith	3★
Rocky Horror Show	CRL	3★
Roland's Rat Race	Ocean	4★
Rommels Revenge	Crystal	5★
Rupert & Toymaker's Party	Quicksilva	4★
Sabre Wulf	Ultimate	5★
Saimazoom	Silversoft	3★
Shadowfire	Beyond	5★
Shadowfire Tuner	Beyond	4★
Skooldaze	Microsphere	5★
Scuba Dive	Durrell	5★
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Skull	Games Machine	3★
Sky Ranger	Microsphere	2★
Snapple Hopper	Macmillan	3★
The Snowman	Quicksilva	4★
Software Star	Addictive Games	2★
Sorcery	Virgin	4★
Space Station Zebra	Beyond	3★
Spectron	Virgin	3★
Spellbound	Beyond	4★
Splat	Incentive	4★
Sports Hero	Melbourne House	3★
Spy Hunter	US Gold	4★
Spy vs Spy	Beyond	5★
St Crippens	Creative Sparks	3★
Stagecoach	Creative Sparks	4★
Starbike	The Edge	3★
Starion	Melbourne House	4★
Starquake	Bubble Bus	5★
Stop the Express	Sinclair	4★
Strangeloop	Virgin	5★
Submarine Strike	Pulsonic	3★
Super Pipeline II	Taskset	3★
Tachyon Command	Century Software	1★
Talos	Silversoft	4★
Tank Trax	Mastertronic	2★
Tapper	US Gold	5★
Technician Ted	Hewson	4★
10 Pack Volume Two	Automata	4★
Terrahawks	CRL	3★
That's the Spirit	The Edge	4★
Therbo	Arcade Software	2★
3D Bat Attack	Cheetahsoft	3★
3D Lunattack	Hewson	3★
3D Seiddab Attack	Hewson	3★
3D Starstrike	Realtime software	4★
3D Tank Duel	Real Time	3★
3D Tunnel	New Generation	5★
Tiler Tim	Microwish	3★
Time Gate	Quicksilva	4★
Timebomb	CDS	4★
Tobor	Add-on	4★
Tornado Low Level	Vortex	5★
Toy Bizarre	Activision	3★

Trashman	New Generation	5★
Travel with Trashman	New Generation	4★
Traxx	Quicksilva	4★
Tribble Trubble	Software Projects	4★
Trom	DK'tronics	2★
Turtle Timewarp	Softstone	2★
Tutankhamun	Micromania	4★
Two-Gun Turtle	Lothlorien	4★
Valley of the Dead	Central Solutions	2★
Underwurlde	Ultimate	5★
Way of the Exploding Fist	Melbourne House	5★
Wheelie	Microsphere	4★
Witch's Cauldron	Mikro-Gen	4★
Wizard's Lair	Bubble Bus	4★
Wizard's Warriors	Mastertronik	2★
World Series Baseball	Imagine	3★
World Series Basketball	Imagine	4★
Worm Attack	Pulsonic	1★
Worse Things Happen at Sea	Silversoft	4★
Wrath of Magra	Mastervision	4★
Wriggler	Romantic Robot	4★
Xadom	Quicksilva	2★
Xavior	PSS Software	3★
XCEL	Activision	3★
Zenji	Activision	4★
Zig-Zag	DK'tronics	4★
Zombie Zombie	Quicksilva	4★

Business

Address Manager	OCP	4★
Banker	Andic Software	3★
Bank Account System	K Gouldstone	4★
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Cash Controller	Shepherd	4★
Classic Bookkeeping	Manx Tapes	3★
Collector's Pack	Sinclair	4★
Database	Microl	4★
Decision Maker	Collins	3★
Electric Office	Fisher Software	2★
Entrepreneur	Collins Soft	3★
Heathplanner	Heath Computing	4★
Histograph	Transform	3★
Home Budget	Kuma Computers	3★
Investment, Insurance, Information	Inform	3★
Invoicing/Accounting	Transform	4★
Keyfile	Keysoft	4★
Letta-Head	Bradway Software	3★
Lifeline	William Stuart	2★
Masterfile	Campbell	5★
Micro Office	SD MICRO	3★
Micropen	Contrast	3★
Mini Office	Database Pubs	4★
Money Manager	Creative Sparks	3★
Multi-File	ISP	3★
Omnicalc	Microsphere	5★
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Personal Financ. Plumbers' Price	J Redman	3★
Profile 2	McGraw-Hill	3★
Projector 1	McGraw-Hill	4★
Sales Ledger	Hestacrest	4★
Spectext	McGraw Hill	4★
Spreadsheet	Microl	4★
Stock Manager	OCP	4★
Superfile	Transform Ltd	3★
Tasprint	Tasman Software	4★
Tasword	Tasman	4★
Tasword II	Tasman	5★
The Unitrust Program	Michael Slatford	3★
UNISTAT	University Software	3★
Va£Track	Morley Davies	4★
Word Manager	OCP	5★
Word Processor	Quicksilva	1★

Education

Angle	Chalksoft	3★
Angle Turner	Arnold Wheaton	4★
Antony and Cleopatra	Akadamias	4★
Astro Maths	Scisoft	3★
Biology	Longman	4★
Blockbuster	Compusound	4★
Bodyworks	Genesis	2★
Castle	L'Ensouleiado	4★
Castle of Dreams	Widgit	4★
Castle Spellerous	Sinclair	4★
Chess Tutor 1	Sinclair	4★
Clown	Englefield Software	2★
Cortes	L'Ensouleiado	3★
Dinosaurs	Piper	3★
Disease Dodgers	Sinclair Research	5★
Dyslexia Beater	Dunitz	4★
Eiffel Tower	Chalksoft	3★
Electronic Learner's Guide	ETST	3★
French	Longman	4★
French is Fun	CDS	3★
Friend or Foe	Longman	3★
Viking Raiders	Firebird	3★
German is Fun	CDS	4★
Highway Code	Learning Systems	3★
Highwire	Englefield Software	2★
Hotline	Chalksoft	3★
Humpty Dumpty	Widget	4★
Inkosi	Chalksoft	3★
Learn to Read 1-5	Sinclair	4★
Light and Heat	Rose Software	4★
Linkword	Silversoft	3★
Look Sharp	Mirrorsoft	4★
Macman in the T. Caves	Sinclair Research	3★
Macman's Magic Mirror	Sinclair Research	4★
Mansfield Park	Sussex	4★
Maths	GCE Tutoring	3★
Mathskills II	Griffin	4★
MDA-PCSS	MDA Assoc.	4★
Merchant of Venice	Penguin Study	4★
Mr T's Measuring Games	Ebury	4★
Mr T Meets His Match	Ebury Software	3★
Musicmaster	Sinclair	3★
Nineteenth C. England	Sussex	4★
Oil Strike	Sinclair Research	4★
Paddington's Garden Game	Collins	4★
Pathfinder	Widget	4★
Physics	Longman	4★
Physics	Scisoft	4★
Pirate	Chalksoft	4★
Postman Pat's Trail Game	Longman	4★
Riddle of the Sphinx	Longman	3★
Run, Rabbit, Run	Longman	4★
Sequences	Chalksoft	3★
Snaffle	Longman	4★
Speech Marks	Sinclair	4★
Spelling Bee	Image Systems	3★
Startrucker	Widget	4★
Stuart Period	Akadamias	4★
SuperTed	Longman	3★
Teacher Data	B Farris	4★
Tense French	Sullis	4★
Weathermaster	Sinclair/Macmillan	4★
Weather Station	Arnold Wheaton	4★
Words and Pictures	Chalksoft	3★
Wordsetter	Sinclair/Macmillan	4★
Word Wizard	Longman	3★
Worldwise	Conflict & Peace	5★
Zoo	L'Ensouleiado	3★

Language

Beta Basic	Betasoft	5★
Forth	Melbourne House	5★
Forth	Sinclair	4★
48/80 Forth	ELR	4★
Hisoft C	Hisoft	5★
Logo	Sinclair	5★
Micro Prolog	Sinclair	4★
Snail Logo	CP	4★
Spec. Forth	Abersoft	5★
Spec. Forth	CP	4★
ZX Forth	Artic	4★

Practical

Astrocalc	Astrocalc	3★
Astronomer	CP Software	4★
Beamscan	Beamscan	5★
Car Cure	Simtron	1★
Computer Cookbook	Bug Byte	3★
Cricket Averages	Spartan CC	4★
Design your Garden	Blandford Press	1★
Diet Master	Diet Master	3★
Dietician	Keysoft	2★
First Aid	Eastmead	2★
How Long have you got?	Eastmead	3★
I Ching	Salamander	4★
Know Your Personality	Mirrorsoft	3★
Love Oracle	Solar Publishing	3★
Magic	Macmillan	4★
Microfitness	VO^2	4★
Psychedelia	Llamasoft	2★
Screenplay	Macmillan	4★
Spacescan	Macmillan	2★
Star Gazer	CRL	4★
Statistics II	Bridge	1★
The Guide to Medicine	Eastmead	2★
Vega-Table	Vega	4★

Puzzle

Arcturus	Visions	3★
Computaword	Work Force	1★
Flix	Softricks	4★
Hareraiser	Haresoft	2★
Mazecube	PAL	3★
Stuart Henry's Pop Quiz	Bellflower	4★
3D Strategy	Quicksilva	4★

Simulation/Strategy

Airline	CCS	4★
Alien	Mind Games	4★
American Football	Mind Games	4★
Angler	Virgin	3★
Arnhem	CCS	5★
Ashes	Pulsonic	4★
Atram	PD Visual Marketing	3★
Barrington's Squash	New Generation	3★
Battle for Midway	PSS	3★
Battle 1917	CCS	4★
The Biz	Virgin	4★
Bryan Robson's S League	Paul Lamond	2★
Brewery	CCS	4★
The Bulge	Lothlorien	4★
Caribbean Trader	East Midland	4★
Combat Lynx	Durrell	4★
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RACING LEAGUE

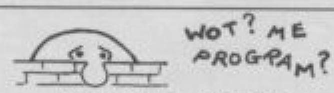
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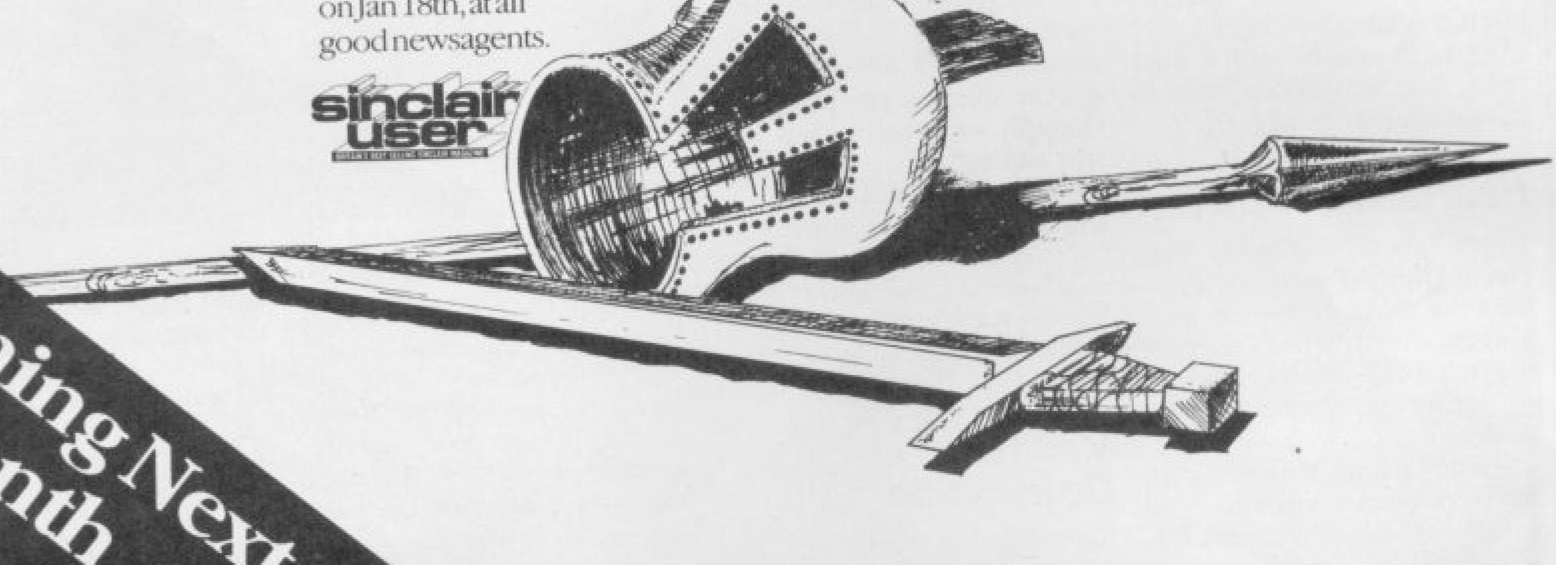
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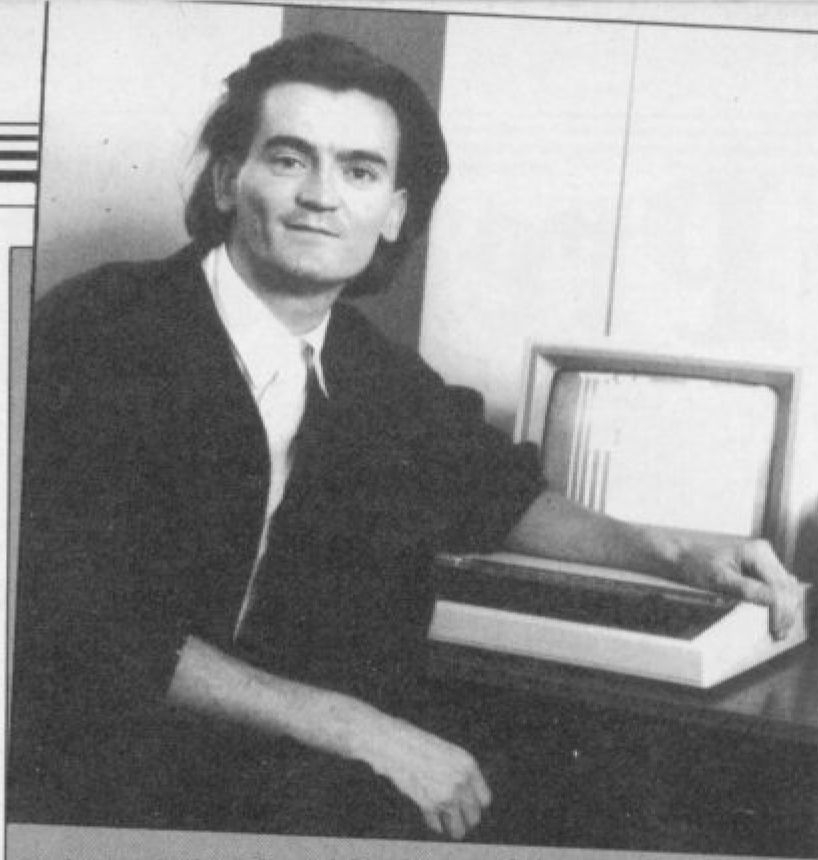
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Coming Next Month

ADVERTISEMENT INDEX

Credit where credit is due



Professional wimp Feargal Sharkey manfully attempts to drum up some enthusiasm for Micronet. "I'd rather watch it than Coronation Street," was, alas, the best he could do.

THOSE OF you who've suffered from the notorious **Catch 28** — or **Camberley syndrome** as its known in the medical world — will be interested to hear that it works both ways. Not only does it take 28 days to receive goods from **Sinclair**, but it also takes Sinclair 28 days to sign a cheque for stuff it buys itself. And we all know what 28 days means . . .

Fearless Freddy

So it's hats off to **Freddy Vaccha** of **Digital Precision**, who's been having a little spat with **Slugger** over whether letters of the alphabet — such as Q and L — constitute a proper trademark.

Freddy got his revenge when he received an order for 20 copies of his excellent **QL Compiler**. His reply was a model of its kind, beginning as it did with the words 'Since we only give credit to reputable companies . . .'

Gremlin reckons fellow sufferers own Vaccha a Christmas card at the very least . . .

Tudor Wallies

This month's tackiest freebie has to have been the mediaeval booze-up hosted by **Mikro-Gen** to launch **Sir Fred.** The lengthy banquet included entertainment from a fat man dressed as Henry VIII who spent much of the time making ribald jokes about a woman from *What Micro?* who only decided to go at the last minute and now wishes she hadn't.

The sight of Mikro-Gen supremo **Mike** 'Wally' **Meek** thumping the table to the strains of *Wild Rover* certainly got the stomach rumbling, and Gremlin supposes a good time was had by all.

It certainly beat the stale Bounty bar sent out with the press release for **Three Weeks in Paradise**, the latest Wally game. But what do you expect from the people who invented the original **Bomber** . . . ?

Vacant Commode

An altogether classier do was **Activision**'s **Little Computer People** launch at Soho's Video Cafe. Self-confessed former Stoolball pro **David Crane**, who wrote the thing, explained how the little people are actually living inside **Commode 64s**, and all the program does is give them a house.

Commode users love this sort of thing, which makes no demands on either intellect or dexterity whatsoever. All you do is watch the little man go through his daily routine, and pretend Crane is a Cabbage Patch Kid in disguise . . .



David White and Steve Smith of Saga prove they'll do anything for a quid as they attempt to raise money to pay off David's latest speeding fines.

Teenage traumas

Talking of kids, **Delta 4** seems to be undergoing an adolescent crisis at the moment. The success of the toned-down **Bored of the Rings** and heavily-censored **Robin of Sherlock** under the **Silversoft** label has been causing ructions.

Virile and dynamic **Fergus McNeill** tells Gremlin he's sacked programmer **Ian Willis** after Ian demanded vast royalties for QL and BBC conversions, even though there's barely a byte laid down on tape.

"He smashed up Delta 4 equipment and made a murderous attack on Mr McNeill's life," says the Casanova of the lower sixth.

While we wait for further developments, Gremlin offers a crumpled fiver to the first reader who can decipher Fergus' message to the world hidden on **Bored of the Rings.** It explains a lot . . .

End of a Legend?

What's happened to **Legend**? For the last couple of months we've heard nothing but boss **John Peel**'s famous imitation of an answering machine.

Ace reporter 'Ligger' Edgeley managed to track the shy publisher of **Valhalla** and **Komplex** to his ex-directory lair after 45 minutes of hard bargaining with the telephone operators.

"No comment," revealed Peel, exclusively to *Sinclair User*.

Gremlin, on the other hand, can say with some authority that Peel has been touting his latest game, **Komplex City**, in the direction of any software house — budget or otherwise — willing to take it . . .

Own goal

Baked bean promoter *Yawn Computing* (Gremlin, November) has produced another first in computer mag advertising.

The yawners have hired the services of **Luther Blisset** — the alleged Watford striker, whose vast knowledge of home computers is legendary — to promote their rag. "When it comes to software, I like to be first on the ball," says Luther.

We wait with bated breath for the latest **Elton John** single extolling the virtues of magazine publishing in Croydon — *Sad Hacks Say Too Much* . . .

Think tank

Congratulations are due to **Chris** 'Lunchbreaks' **Bourne** for winning a bottle of Scotch from **Ariolasoft** — a prize dear to his pickled heart. Lunchbreaks, whose passion for boring strategy games is only matched by his passion for boring everybody else, achieved this by being the only person to beat designer **David Bishop** at his new game **Think!**

Among the hacks left standing was **Jack Schofield**, who writes a tedious weekly column about word-processing and other . . . well, usually about word-processing, in the *Guardian*. One wonders what he was there for?

Well, he didn't get the Scotch, anyway . . .

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BY D.K.MARSHALL

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